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Hanson et al.

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(54) **MULTI-PIECE COMPARTMENTED CONTAINER WITH VENTING**

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(51) **Int. Cl.**

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B65D 6/28	(2006.01)
B65D 8/18	(2006.01)
B65D 1/24	(2006.01)
B65D 1/36	(2006.01)
B65D 85/00	(2006.01)

(52) **U.S. Cl.** **220/526**; 220/4.21; 220/366.1; 220/367.1; 220/528; 220/785

(58) **Field of Classification Search** 220/4.21, 220/366.1, 367.1, 526, 528, 529, 554, 556, 220/575, 785

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,607,863	A	11/1926	Betts	
1,607,864	A	11/1926	Butler	
2,717,505	A	9/1955	Andersson	
2,944,694	A	7/1960	Kinsey	
3,589,554	A	6/1971	Smith	
3,851,789	A	12/1974	Case et al.	220/307
D262,839	S	2/1982	Daenen et al.	
4,925,047	A	5/1990	Valentine et al.	
5,123,564	A	6/1992	Hobson	
5,624,051	A *	4/1997	Ahern et al.	220/553
5,730,313	A	3/1998	Hayes et al.	220/526
5,947,321	A	9/1999	Vadney	220/367.1
5,950,834	A *	9/1999	Woodnorth et al.	206/541
6,074,676	A	6/2000	Cadiente et al.	426/106
6,349,847	B1	2/2002	Mangla et al.	220/754
6,845,878	B2	1/2005	Hayes et al.	220/839
7,124,910	B2 *	10/2006	Nordland	220/839
D547,124	S	7/2007	Peretz	
7,243,813	B2	7/2007	Krueger	
7,552,840	B2 *	6/2009	Gitschlag et al.	220/575
2004/0094548	A1	5/2004	Laveault	
2004/0188442	A1 *	9/2004	Ohyama	220/367.1
2005/0051549	A1	3/2005	Nelson	
2005/0205570	A1 *	9/2005	Ramirez et al.	220/4.21
2005/0208188	A1	9/2005	Garwood	
2007/0065545	A1	3/2007	Vovan	

* cited by examiner

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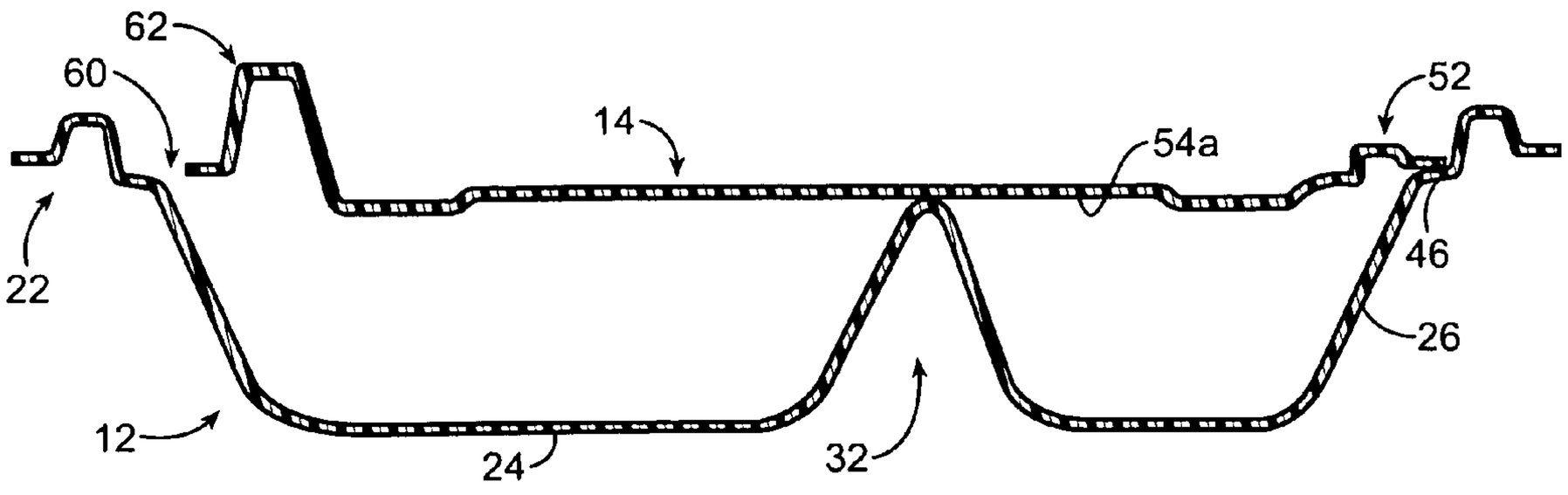
(57) **ABSTRACT**

A compartmentalized container includes a base, an insert and a lid. The base includes a bottom and a sidewall. The sidewall encompasses and extends generally upwardly from the bottom. The insert is coupled with the base in which the coupled insert and base form a venting area. The lid is coupled with at least one of the insert and the base. The lid forms at least one vent that is in communication with the venting area formed with the insert and the base.

25 Claims, 18 Drawing Sheets



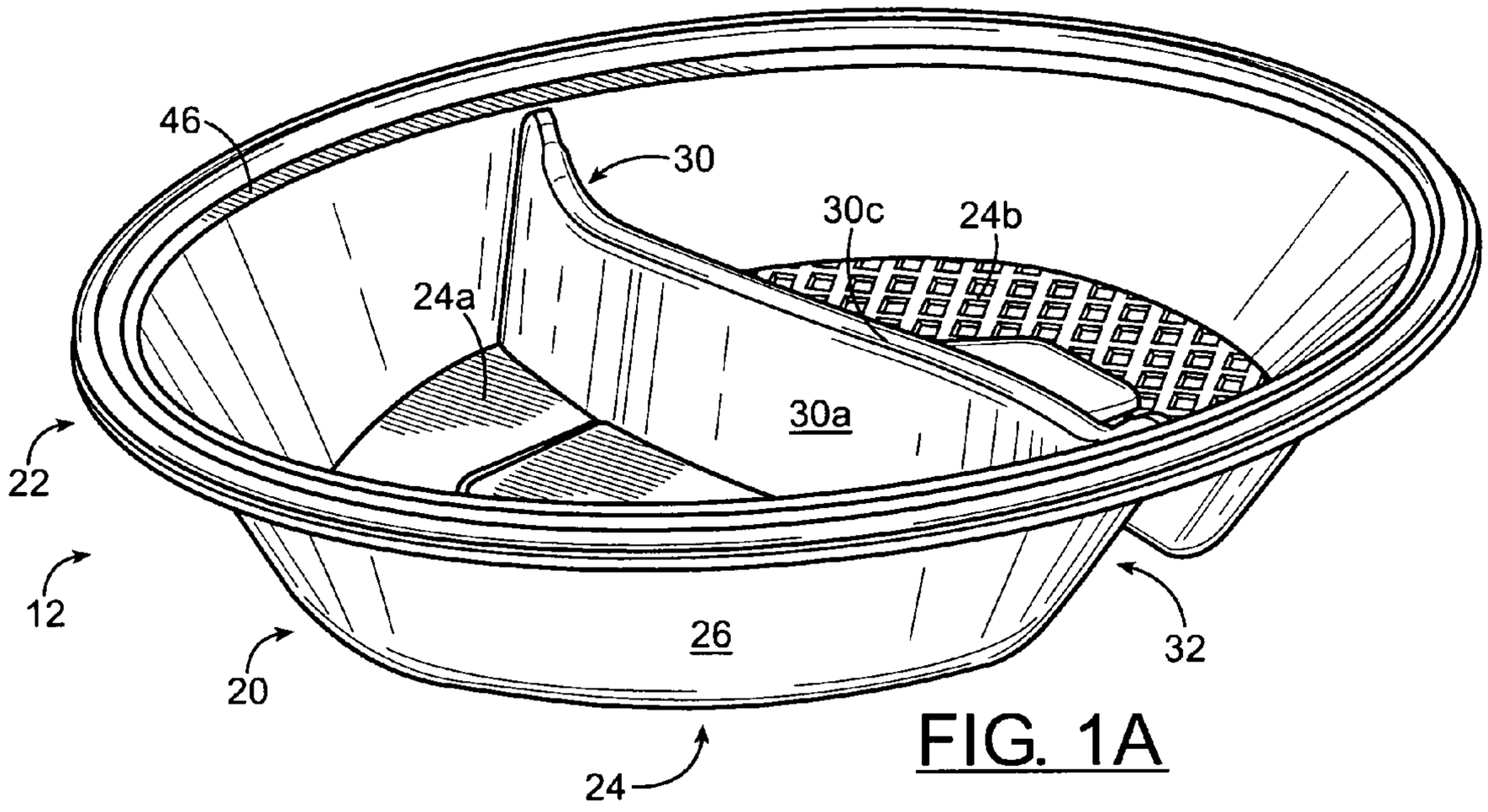


FIG. 1A

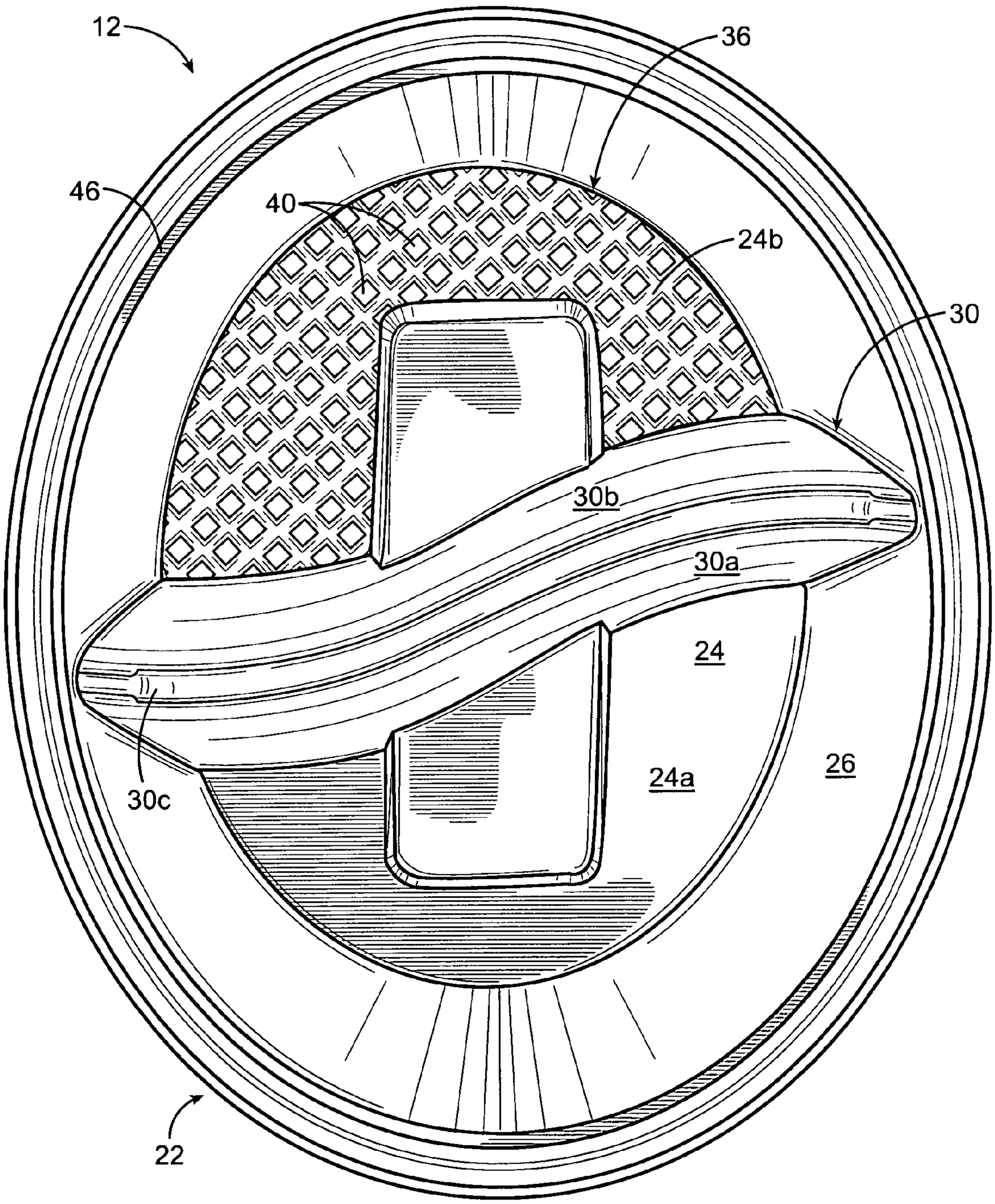


FIG. 1B

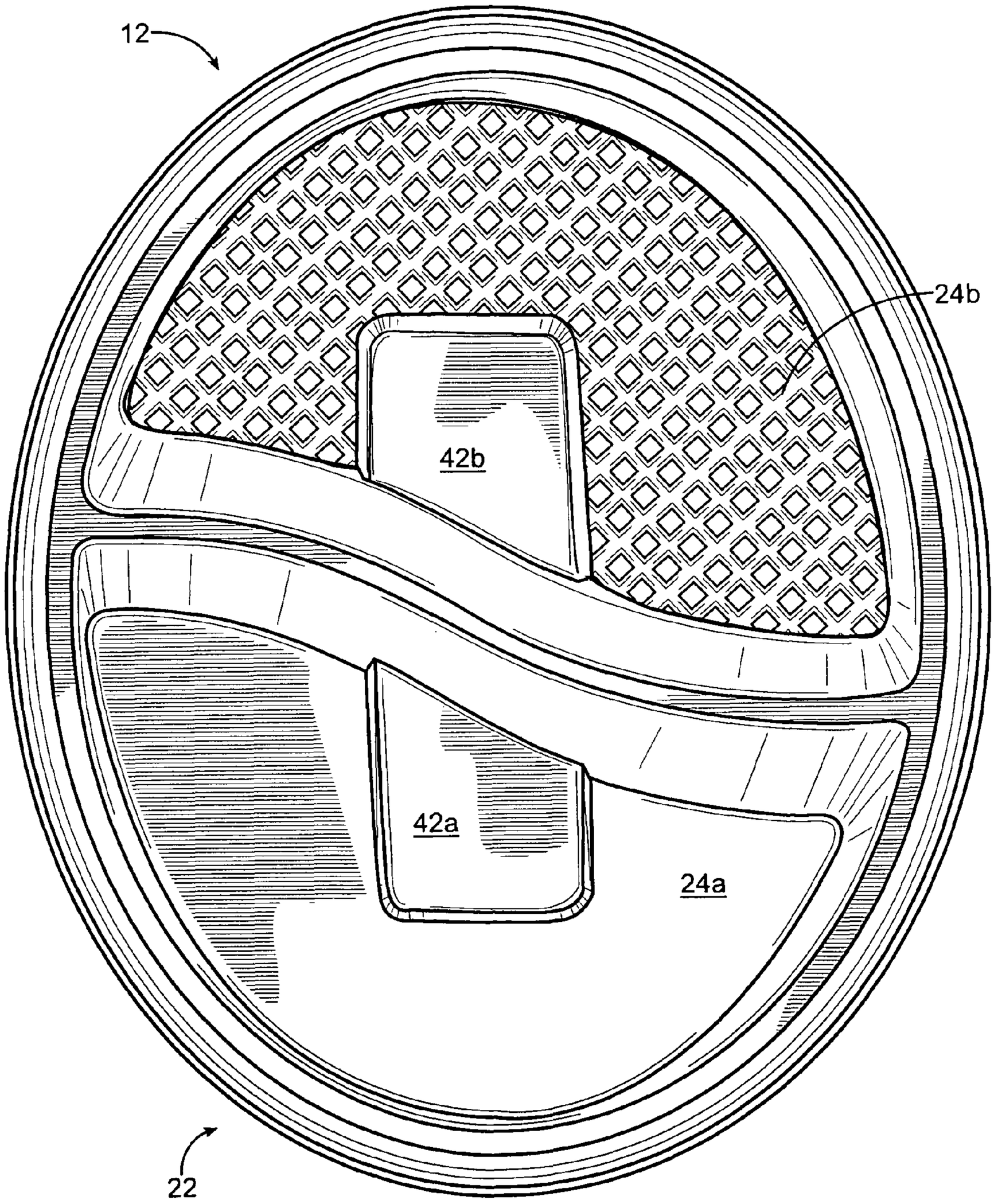


FIG. 1C

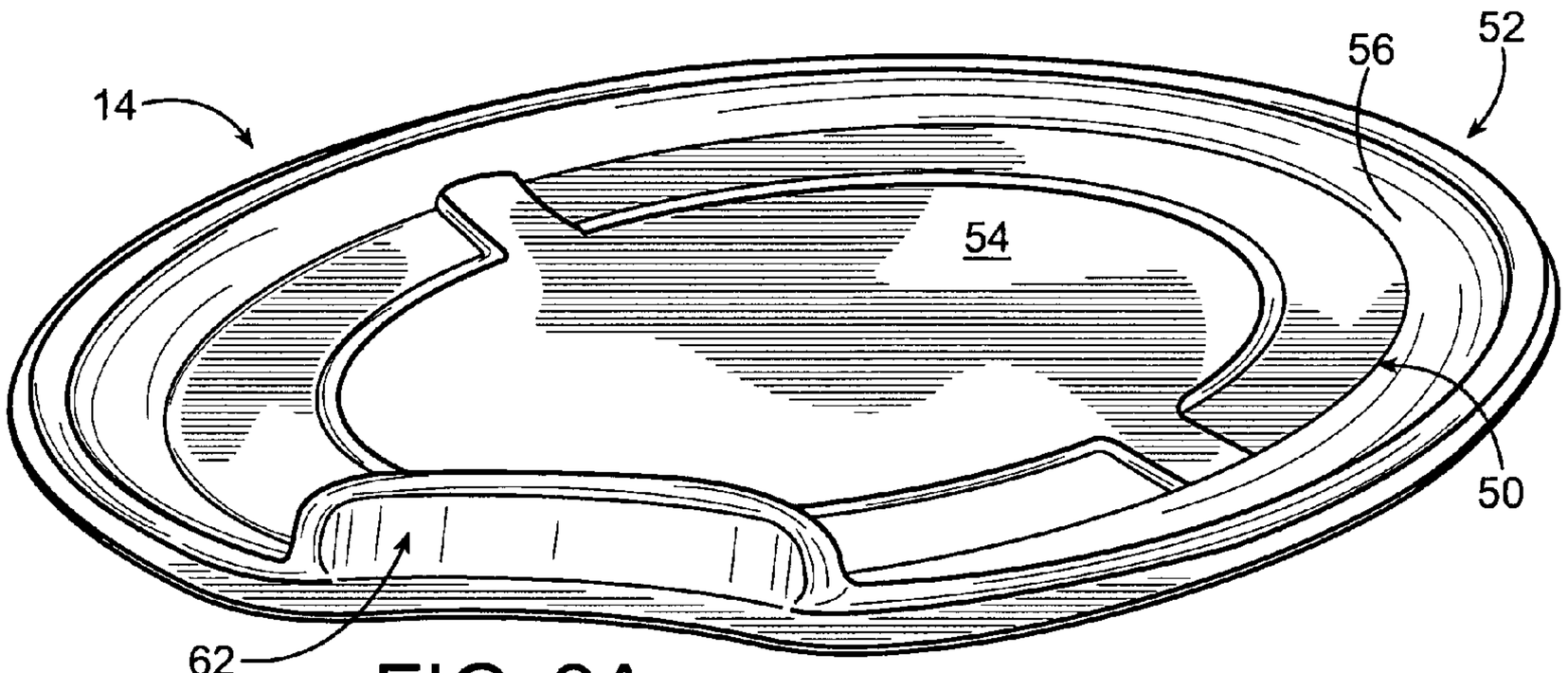


FIG. 2A

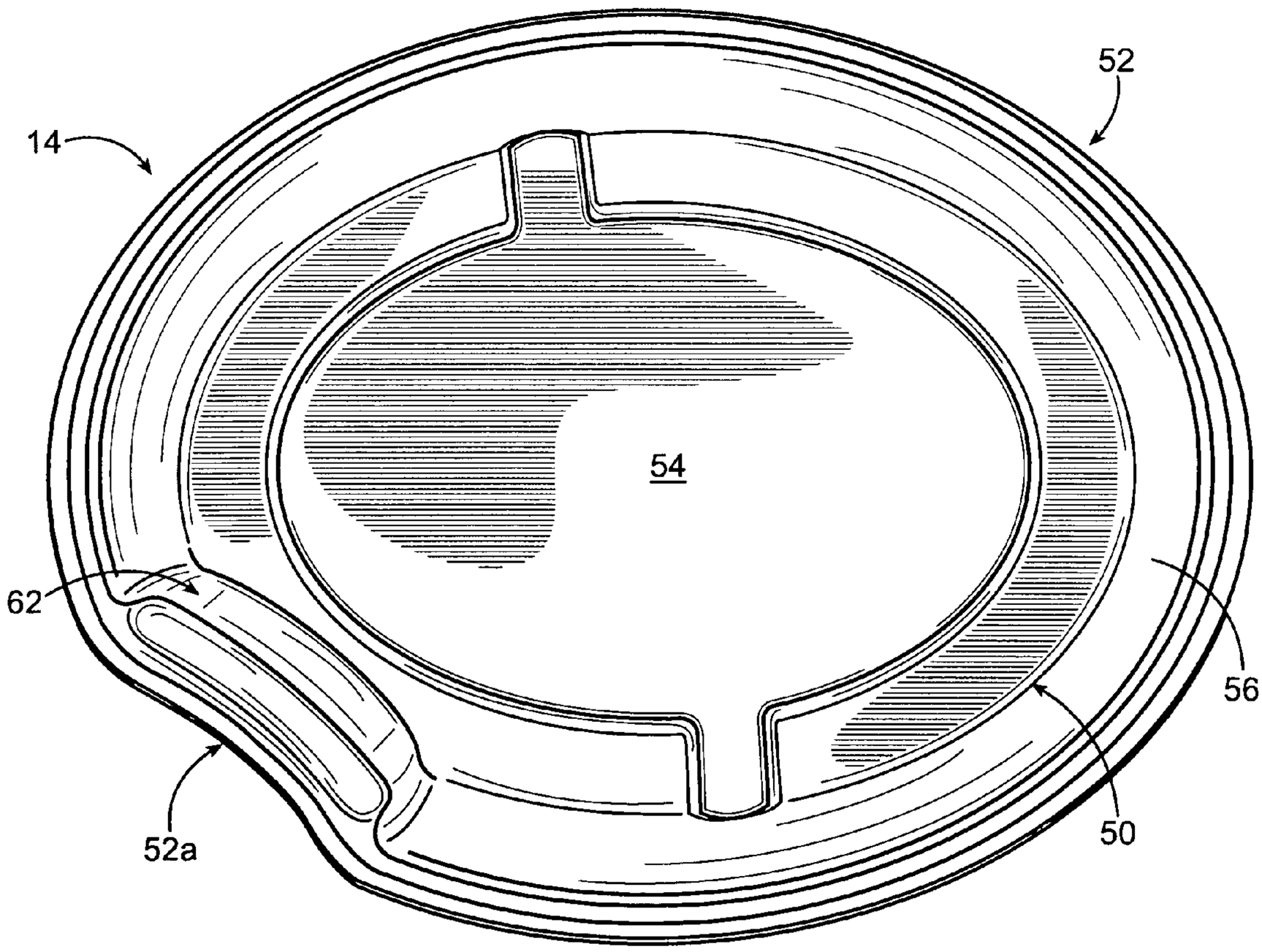


FIG. 2B

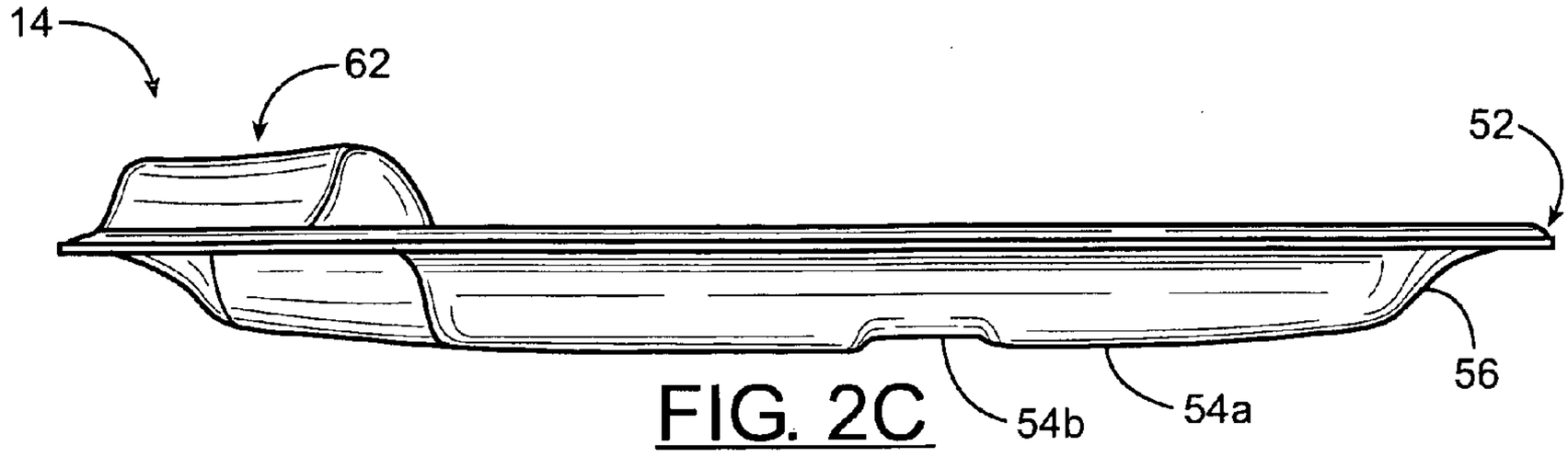


FIG. 2C

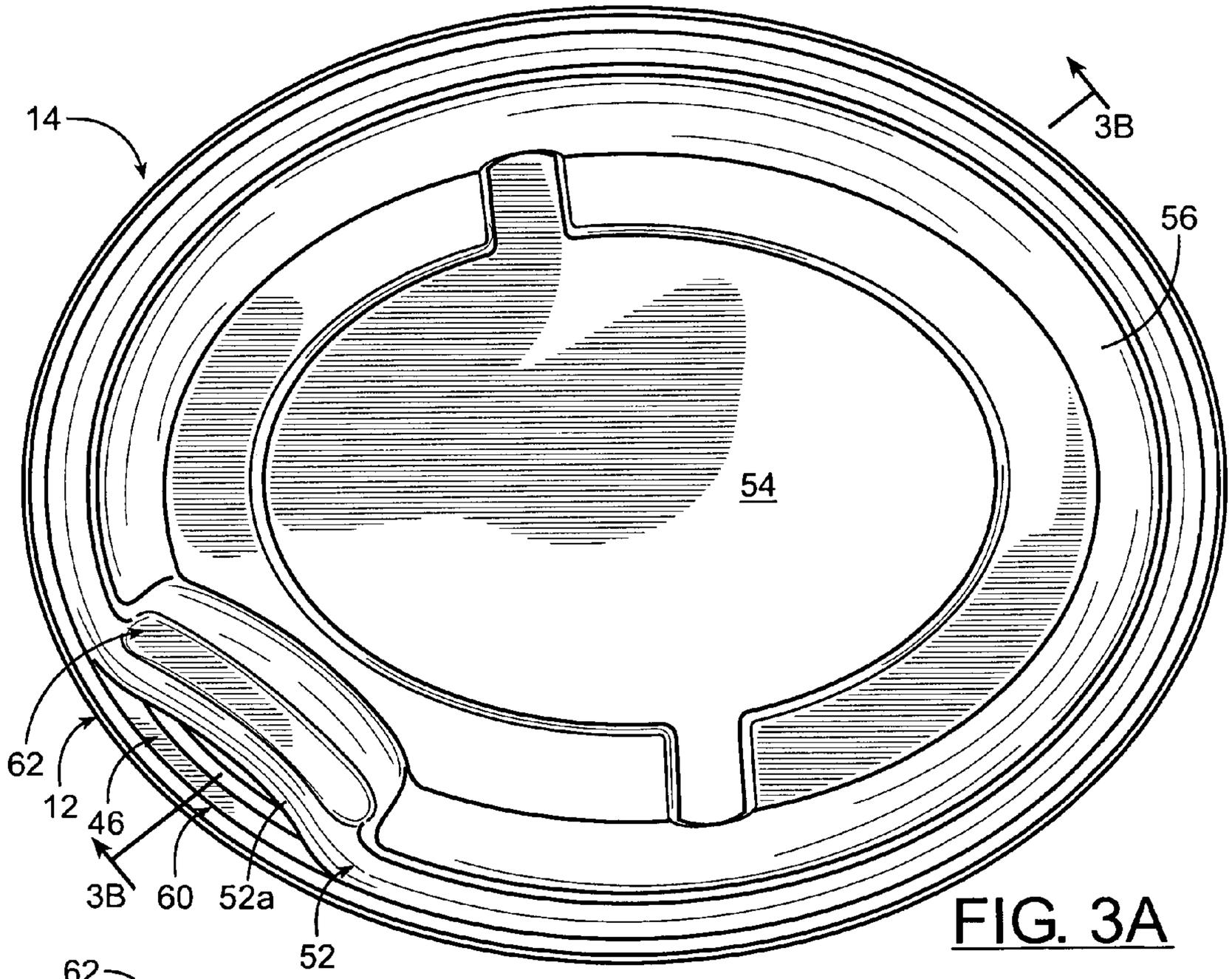


FIG. 3A

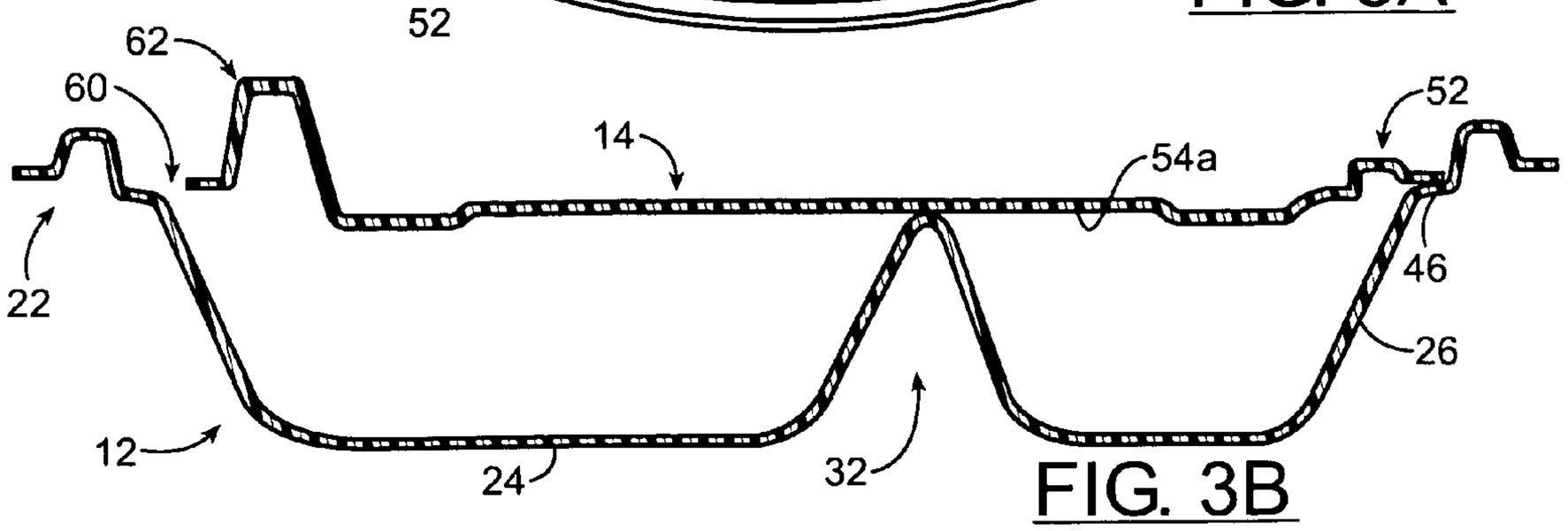


FIG. 3B

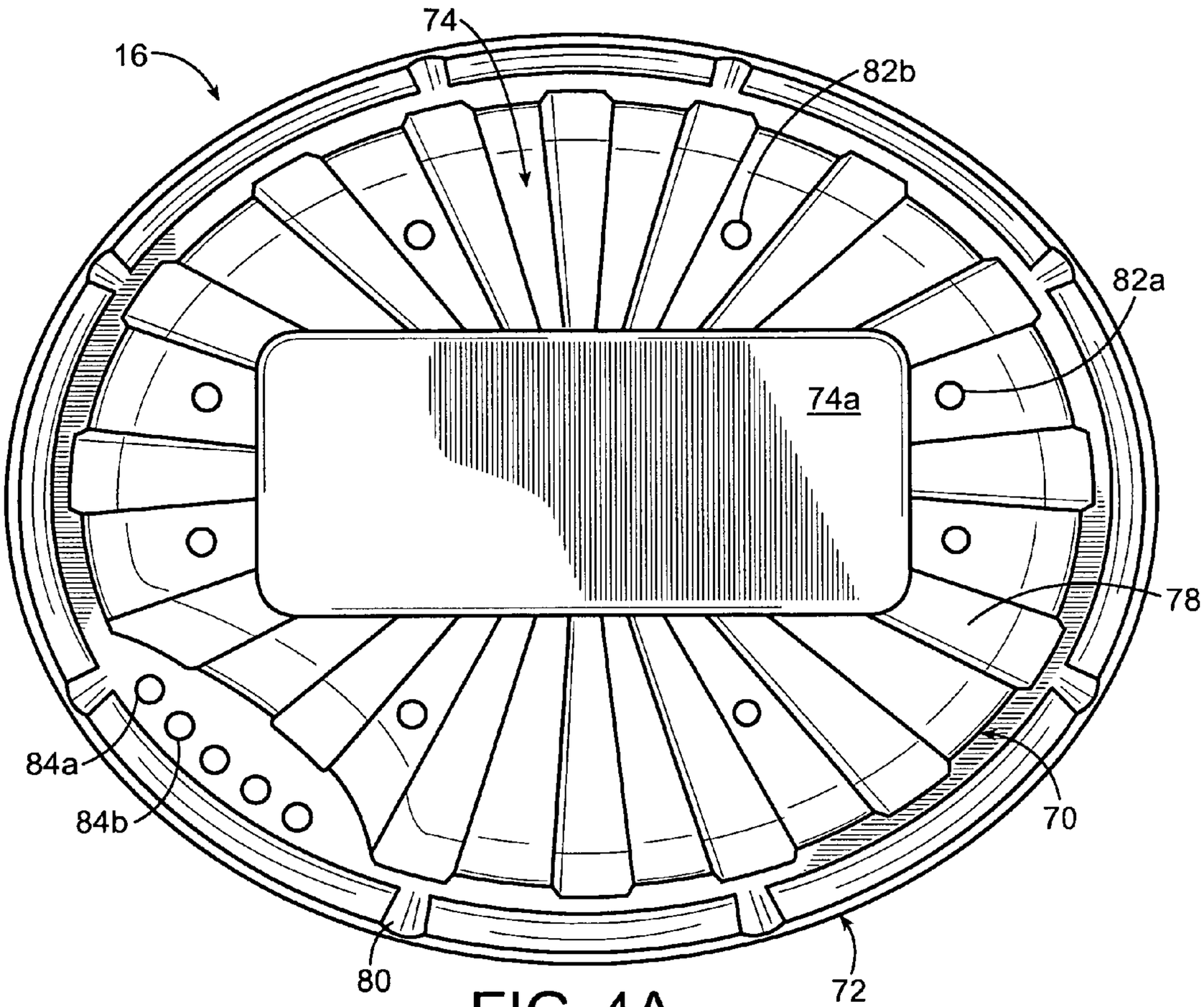


FIG. 4A

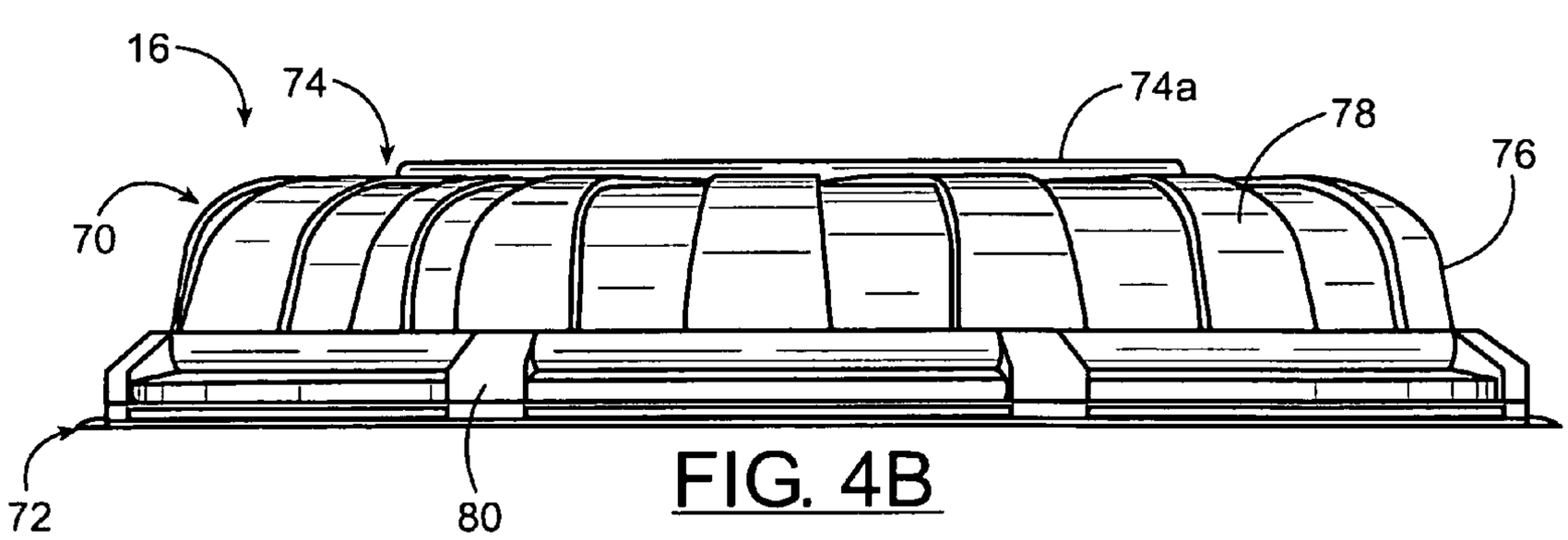


FIG. 4B

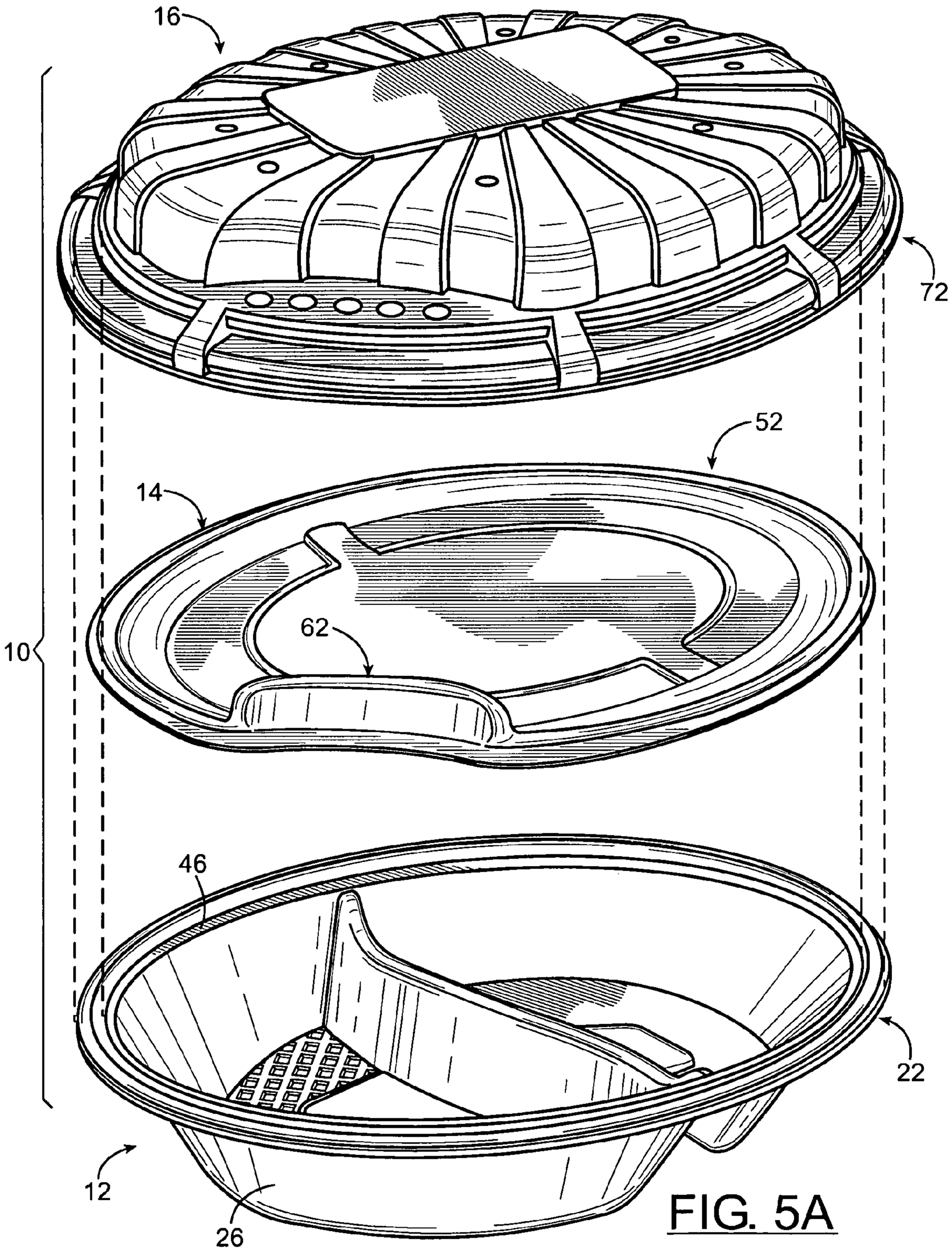


FIG. 5A

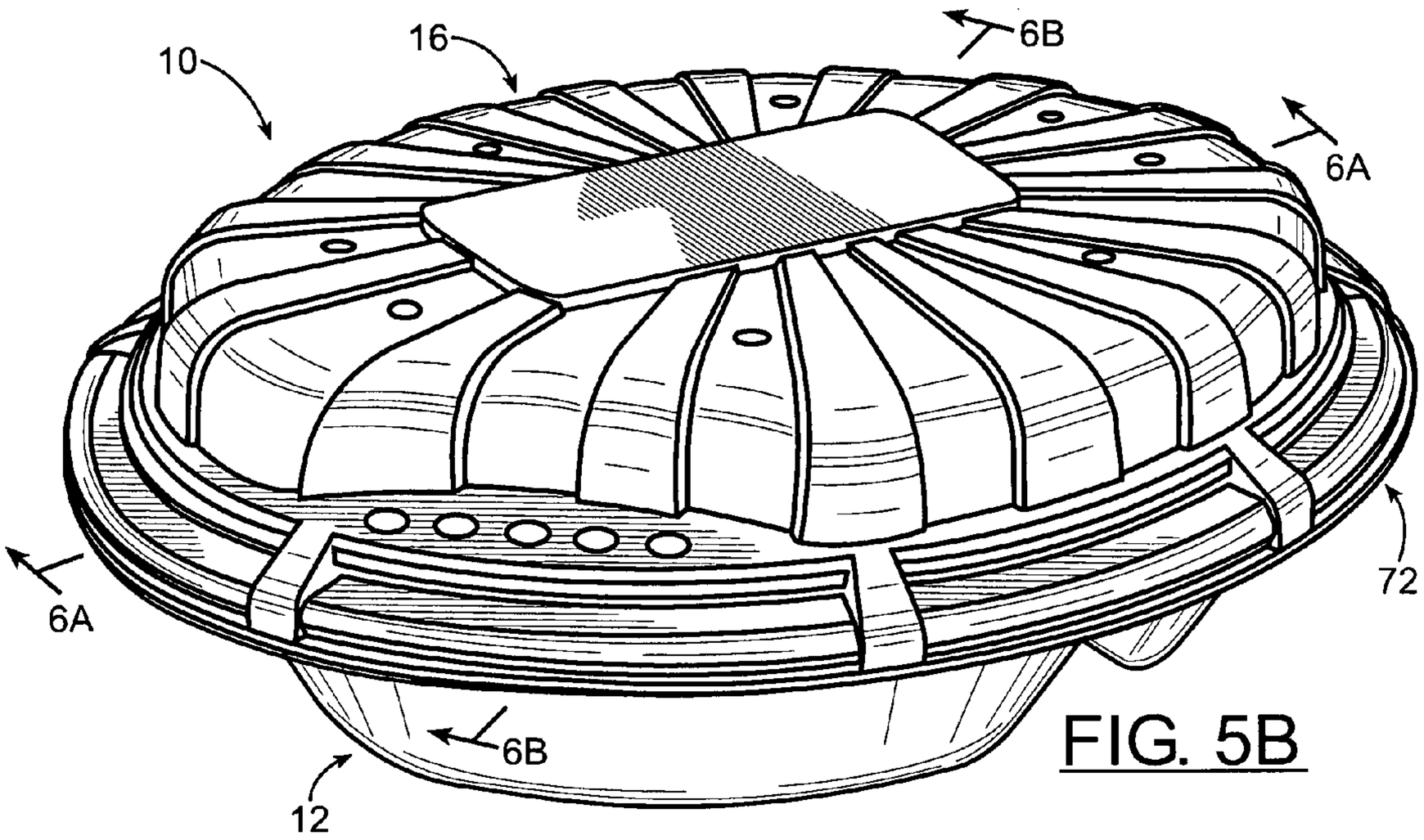


FIG. 5B

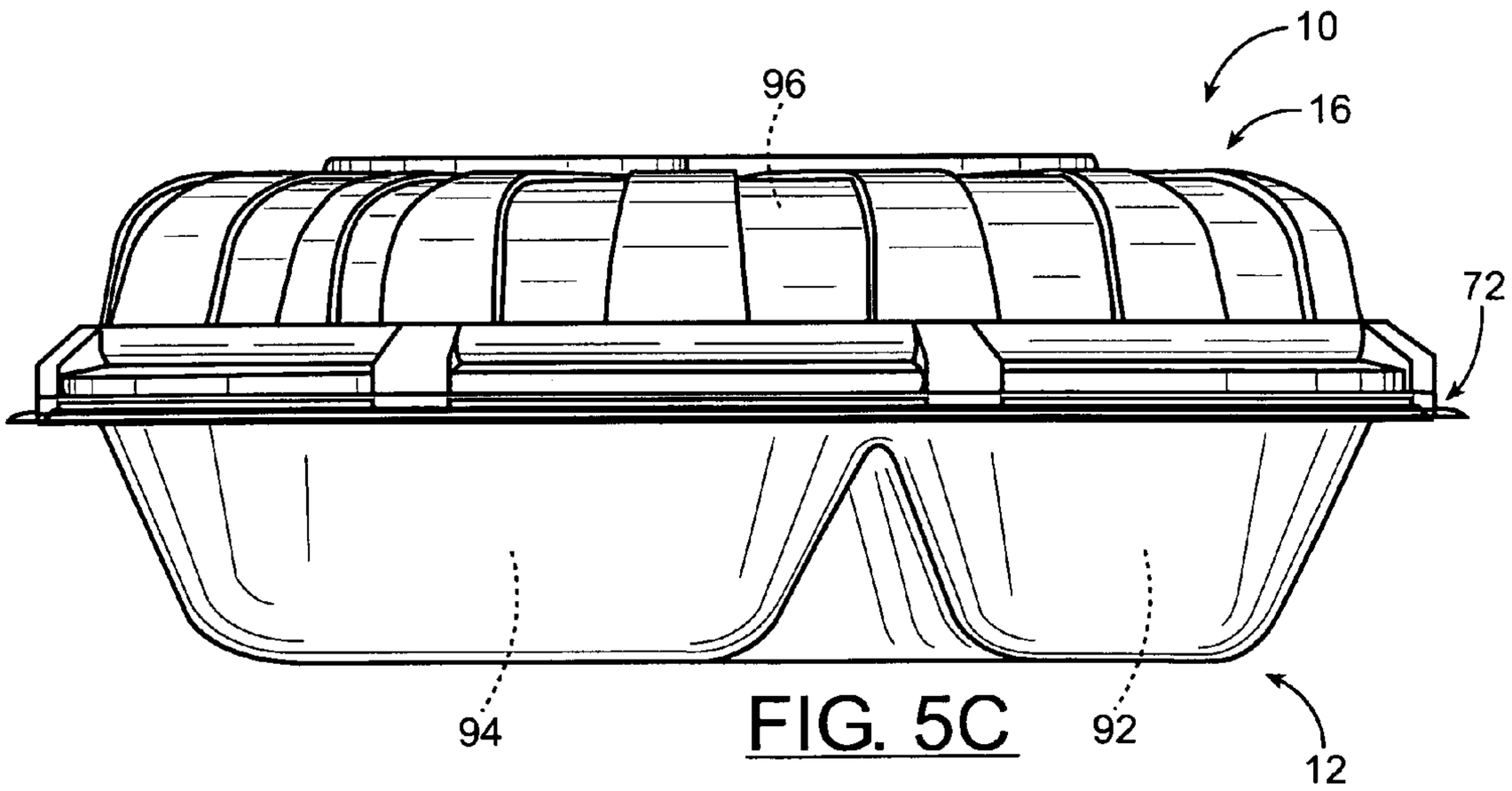


FIG. 5C

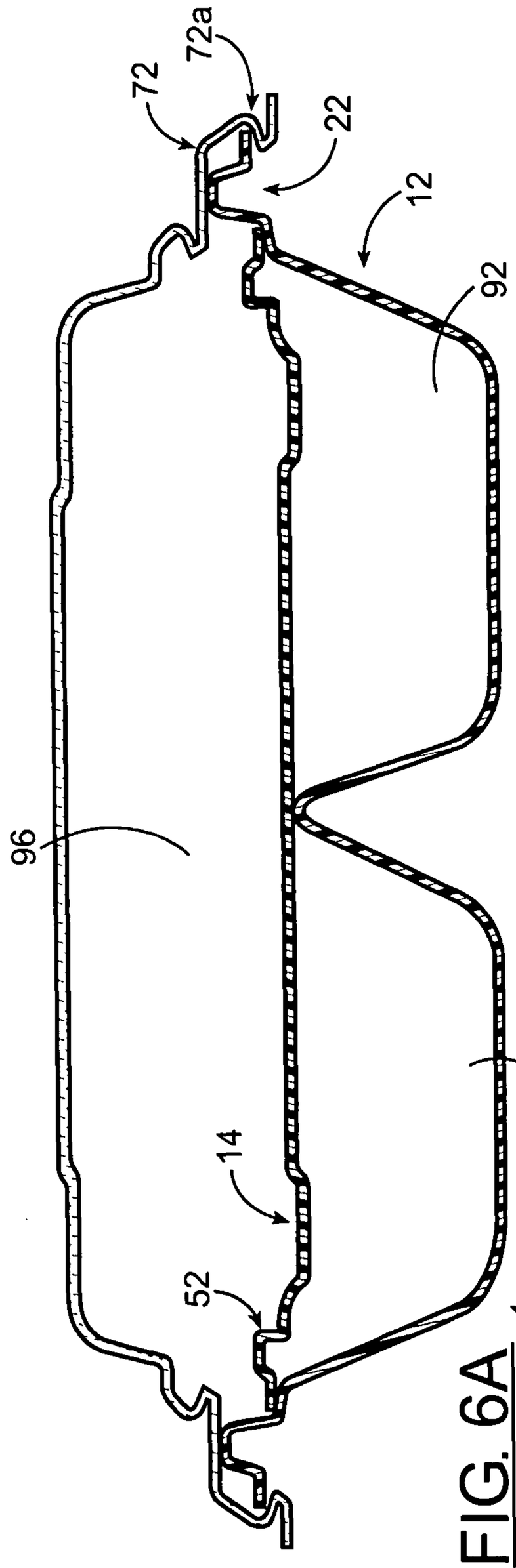

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FIG. 6A

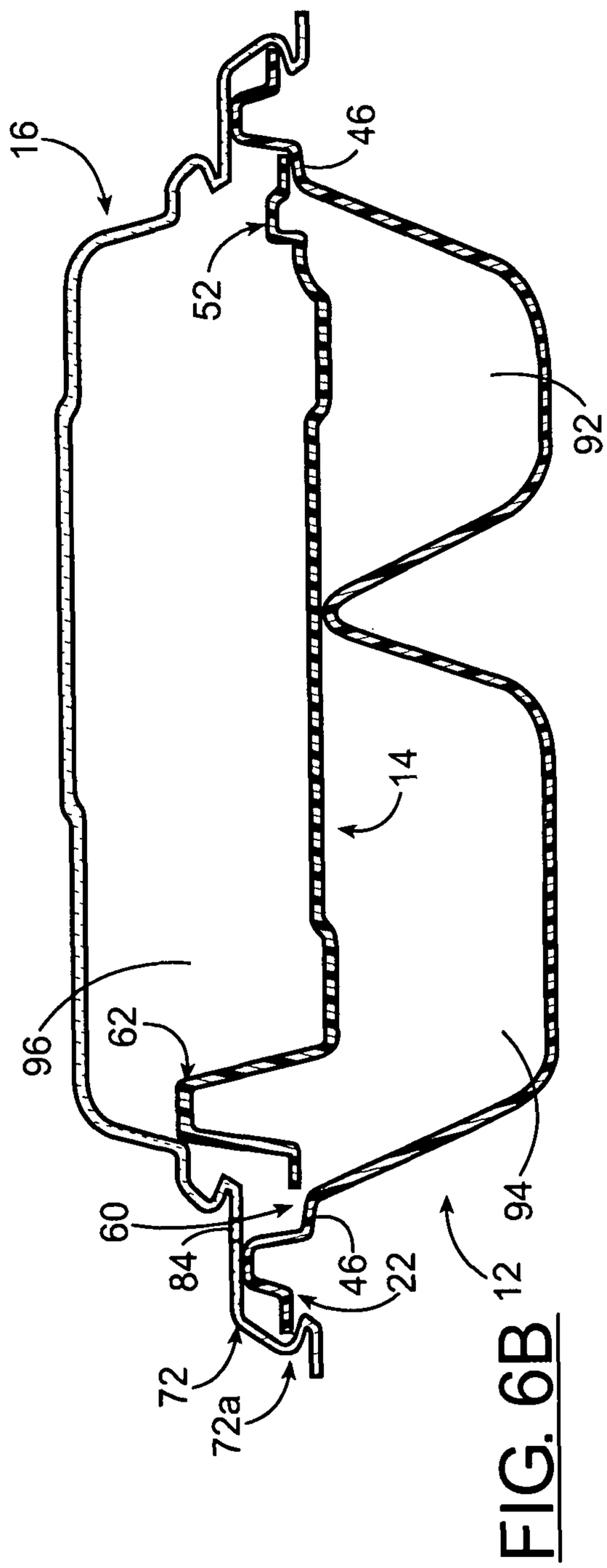
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FIG. 6B

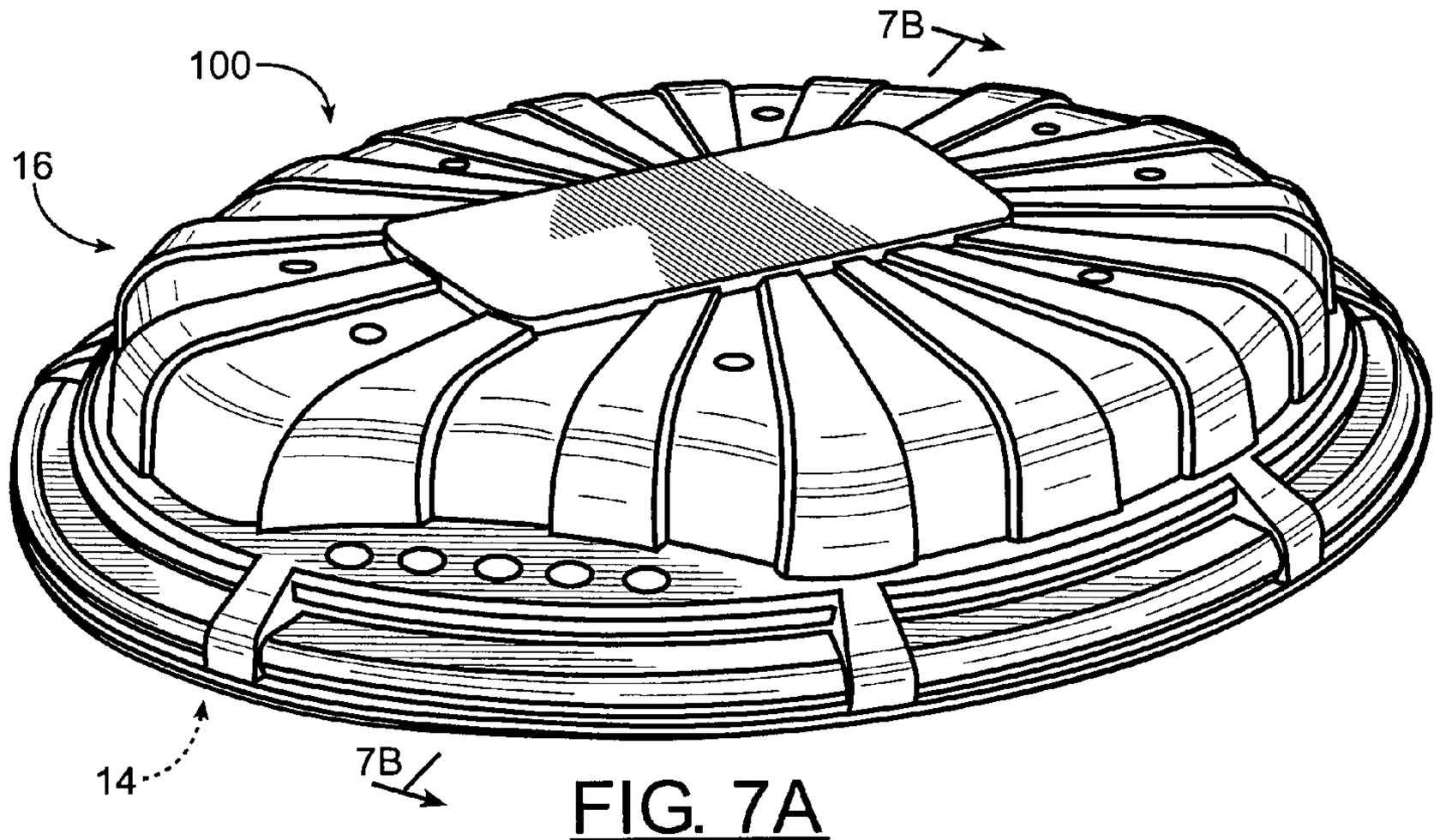

FIG. 7A

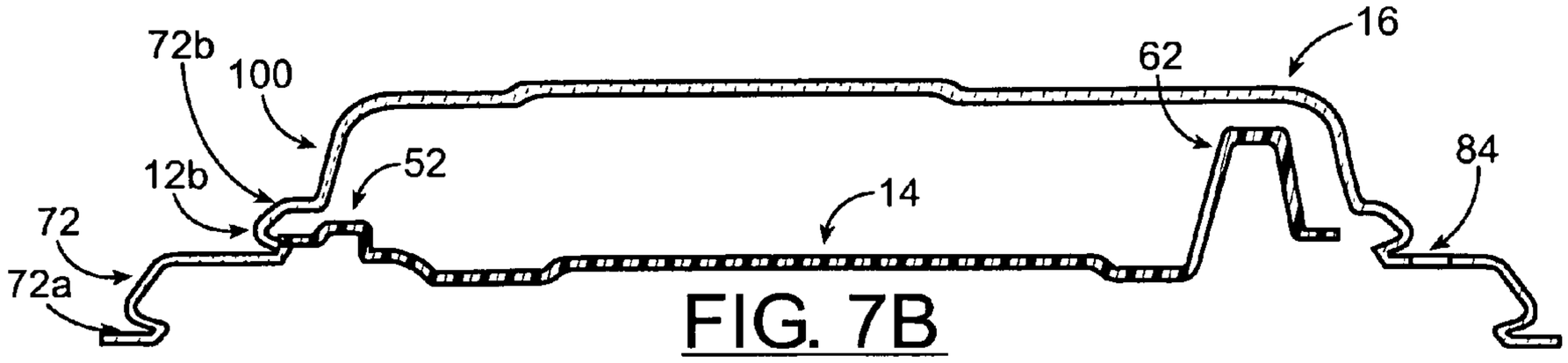

FIG. 7B

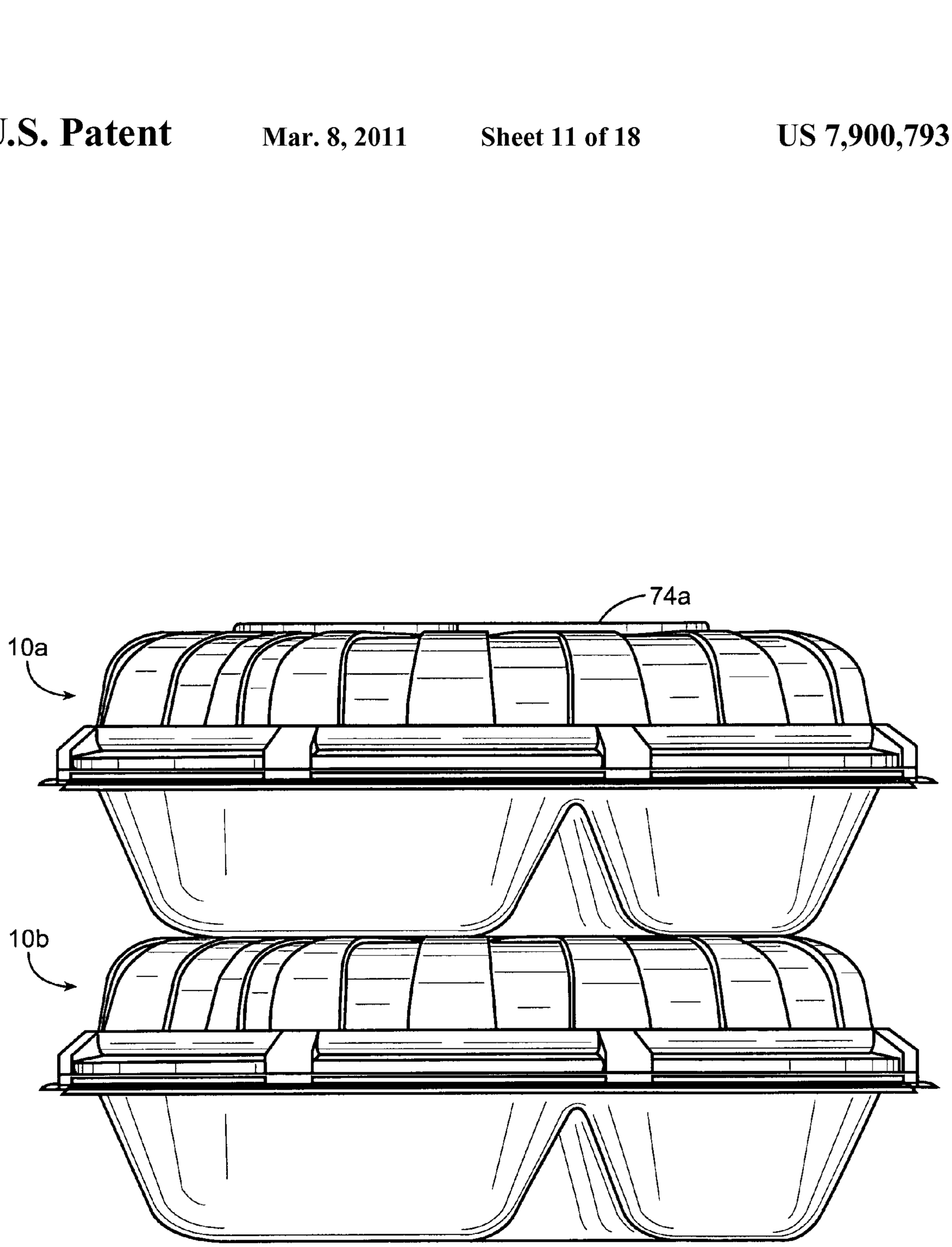

FIG. 8

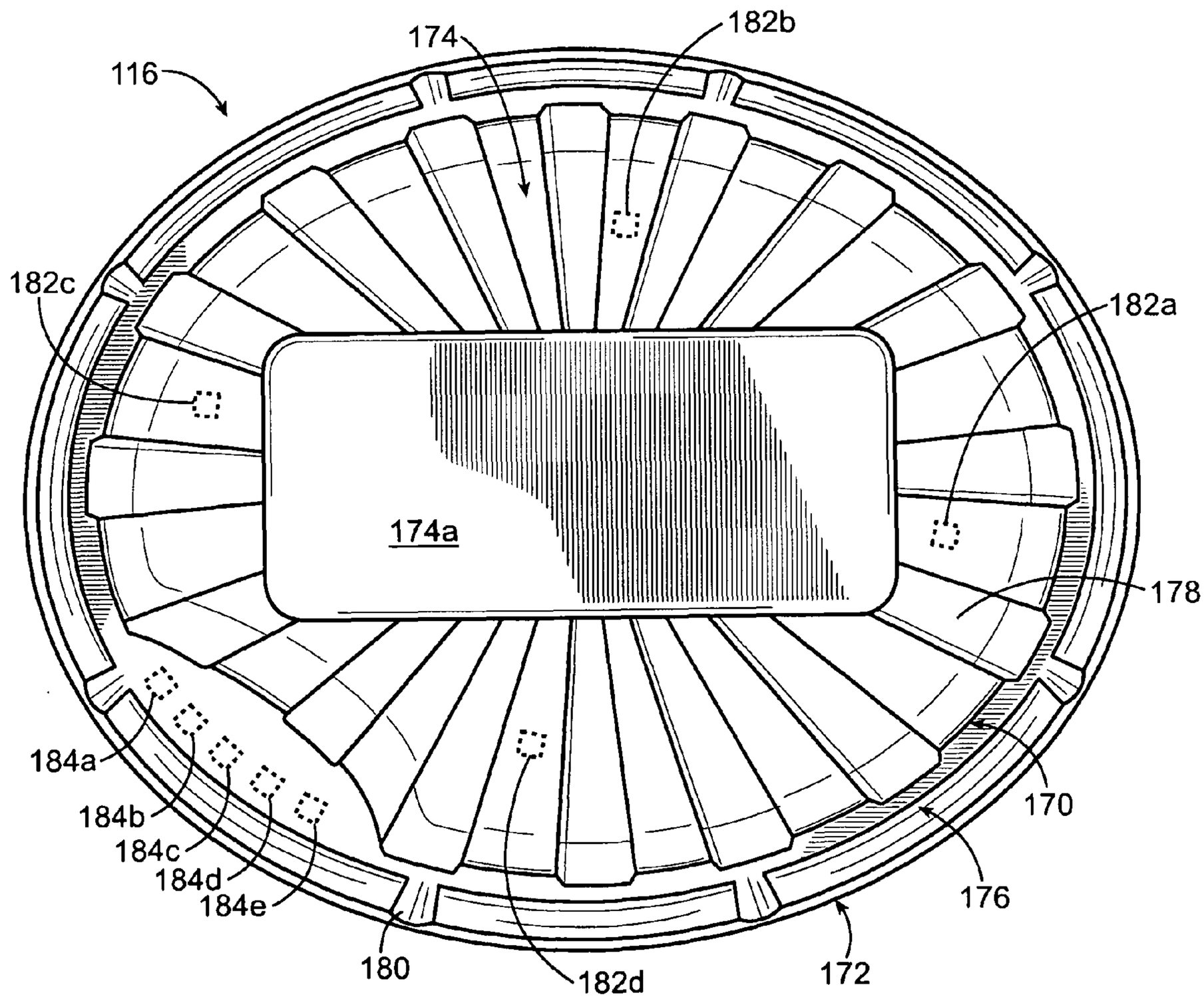
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FIG. 9

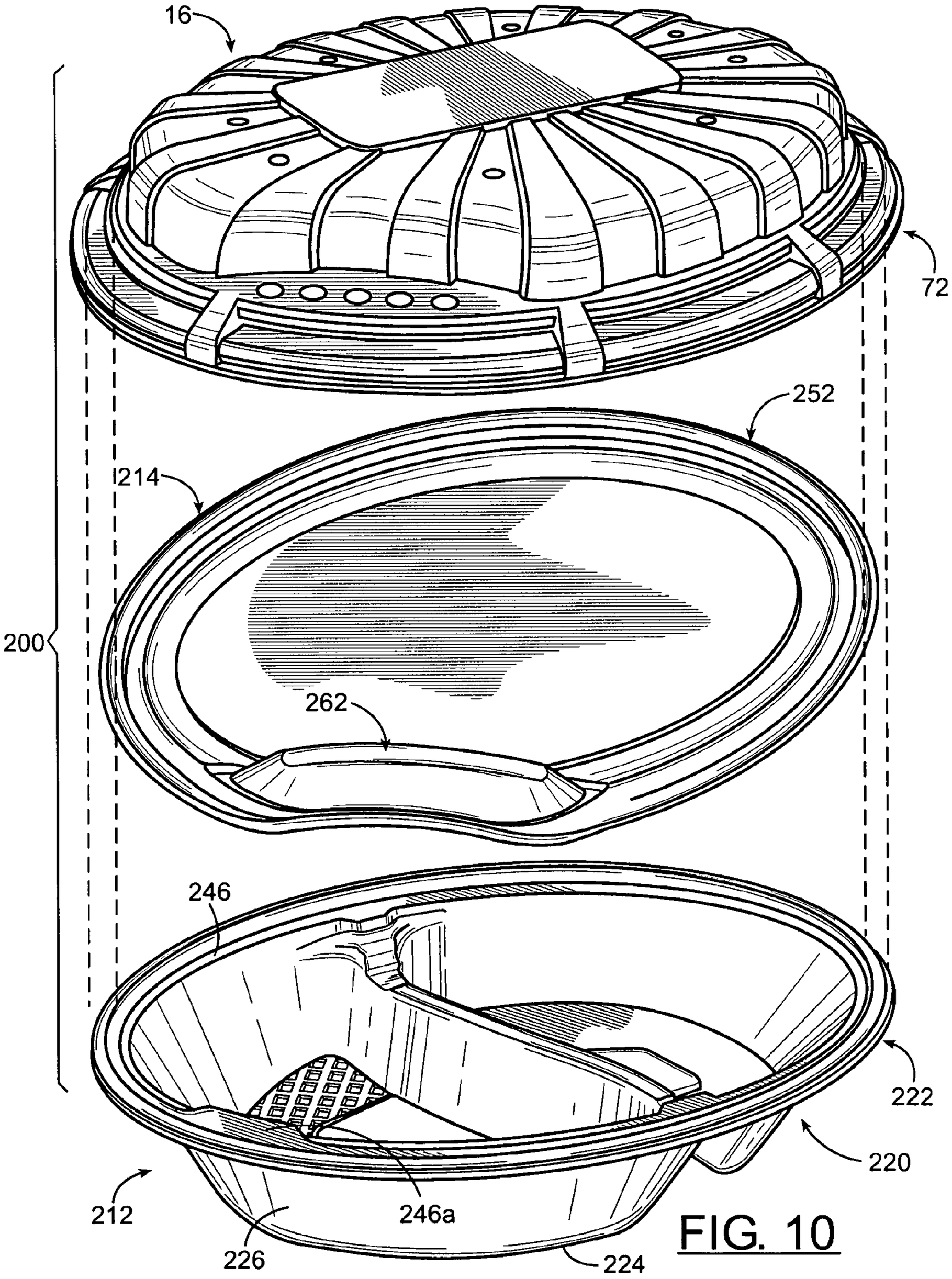

FIG. 10

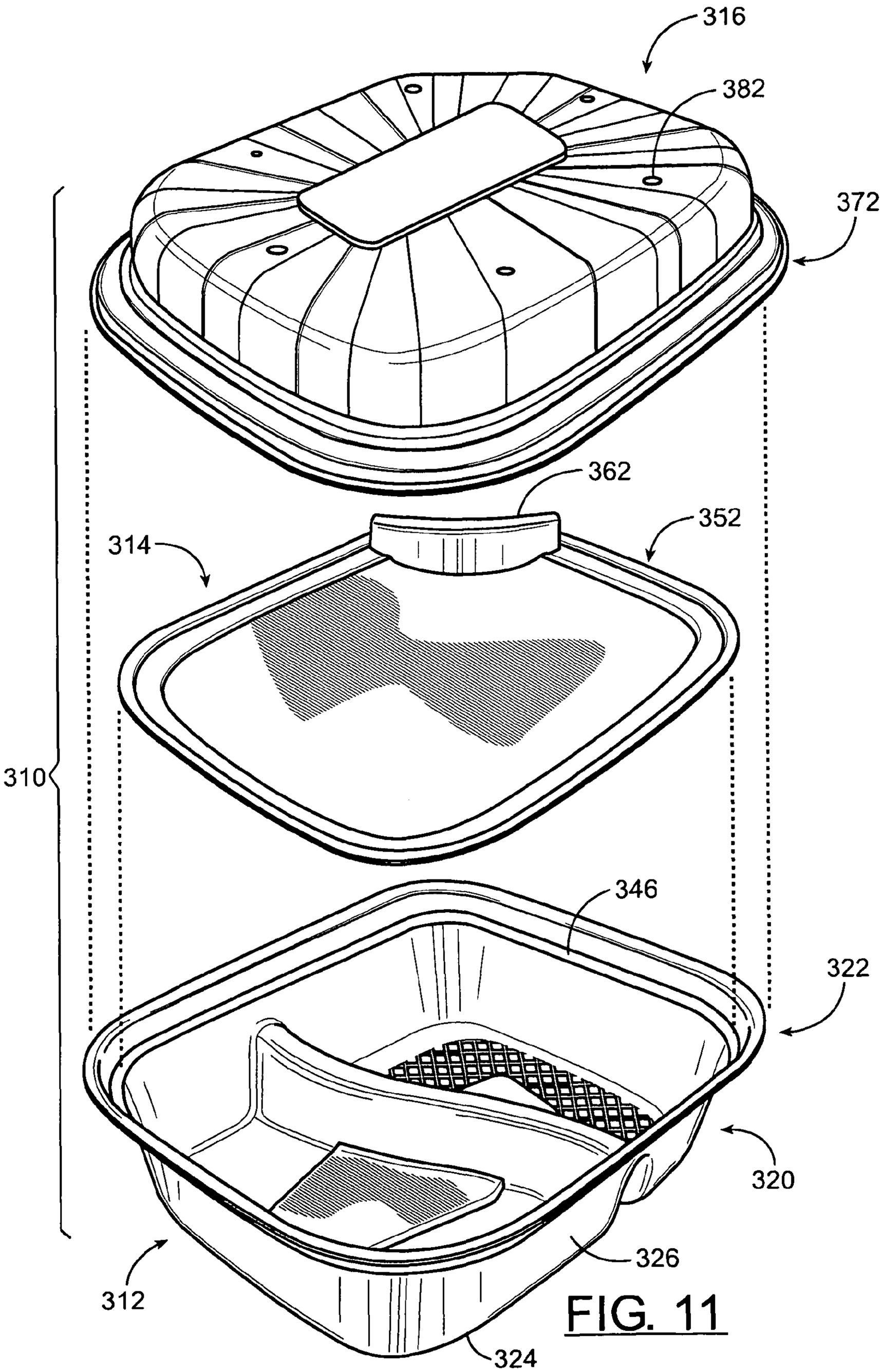

FIG. 11

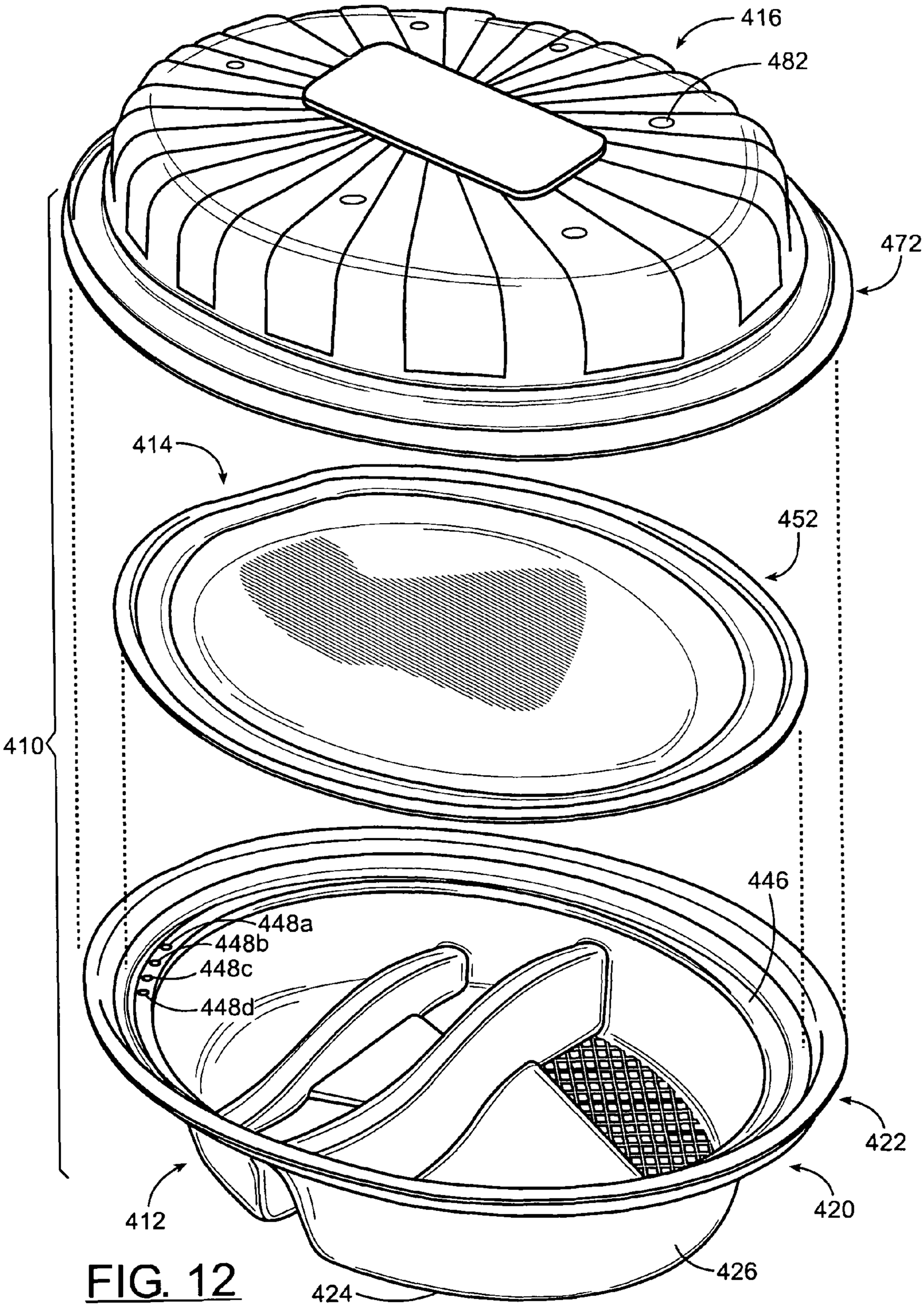
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FIG. 12

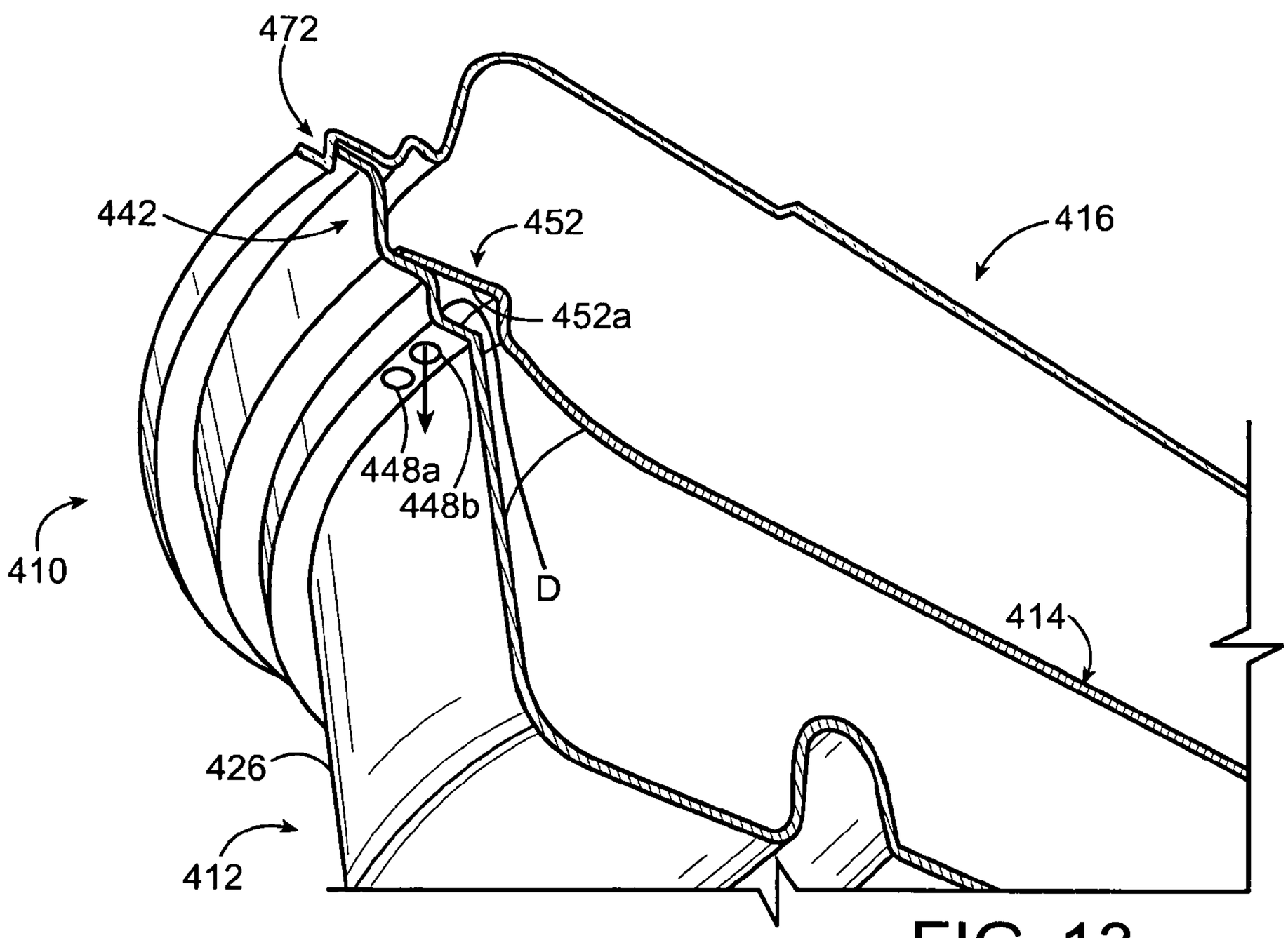

FIG. 13

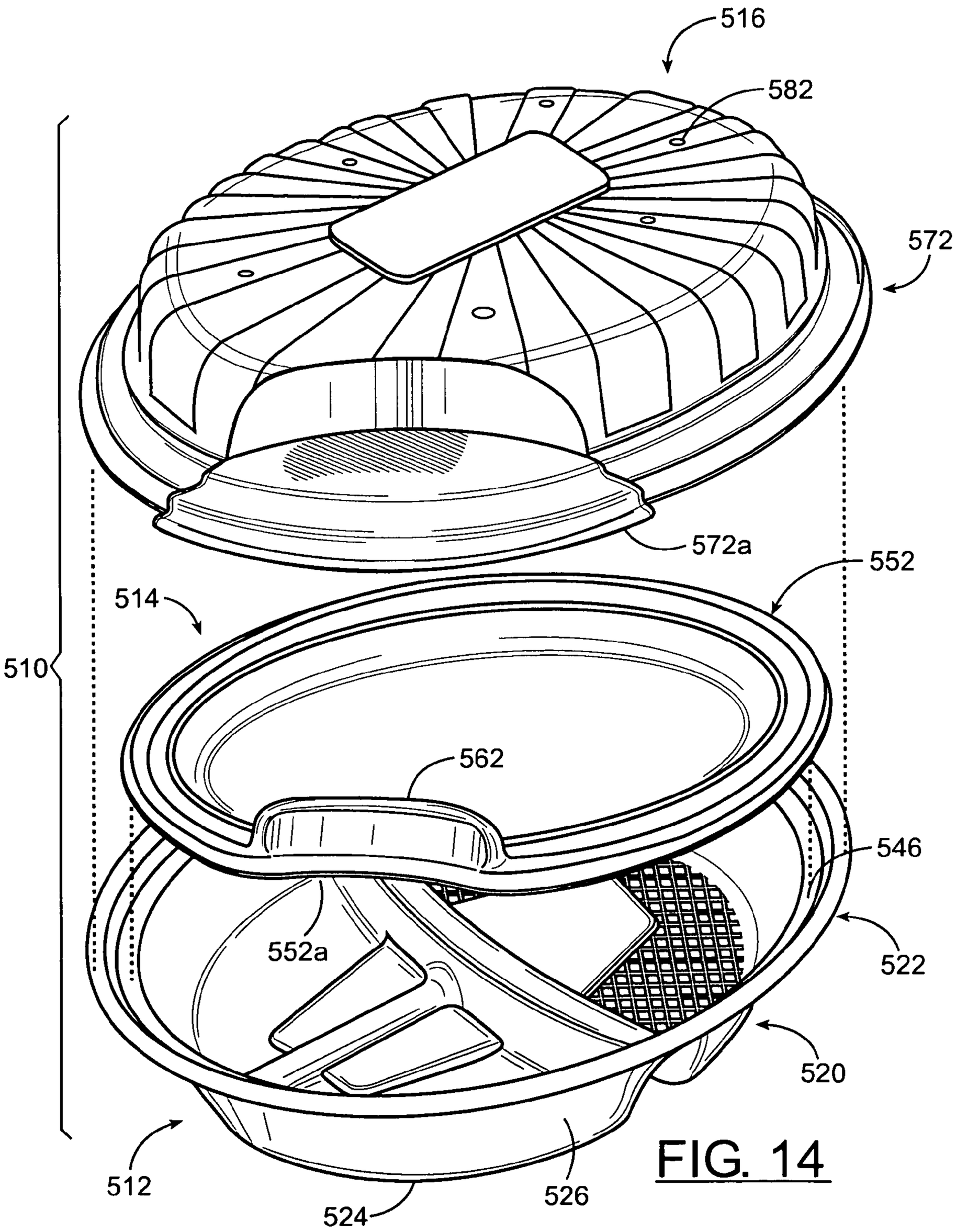

FIG. 14

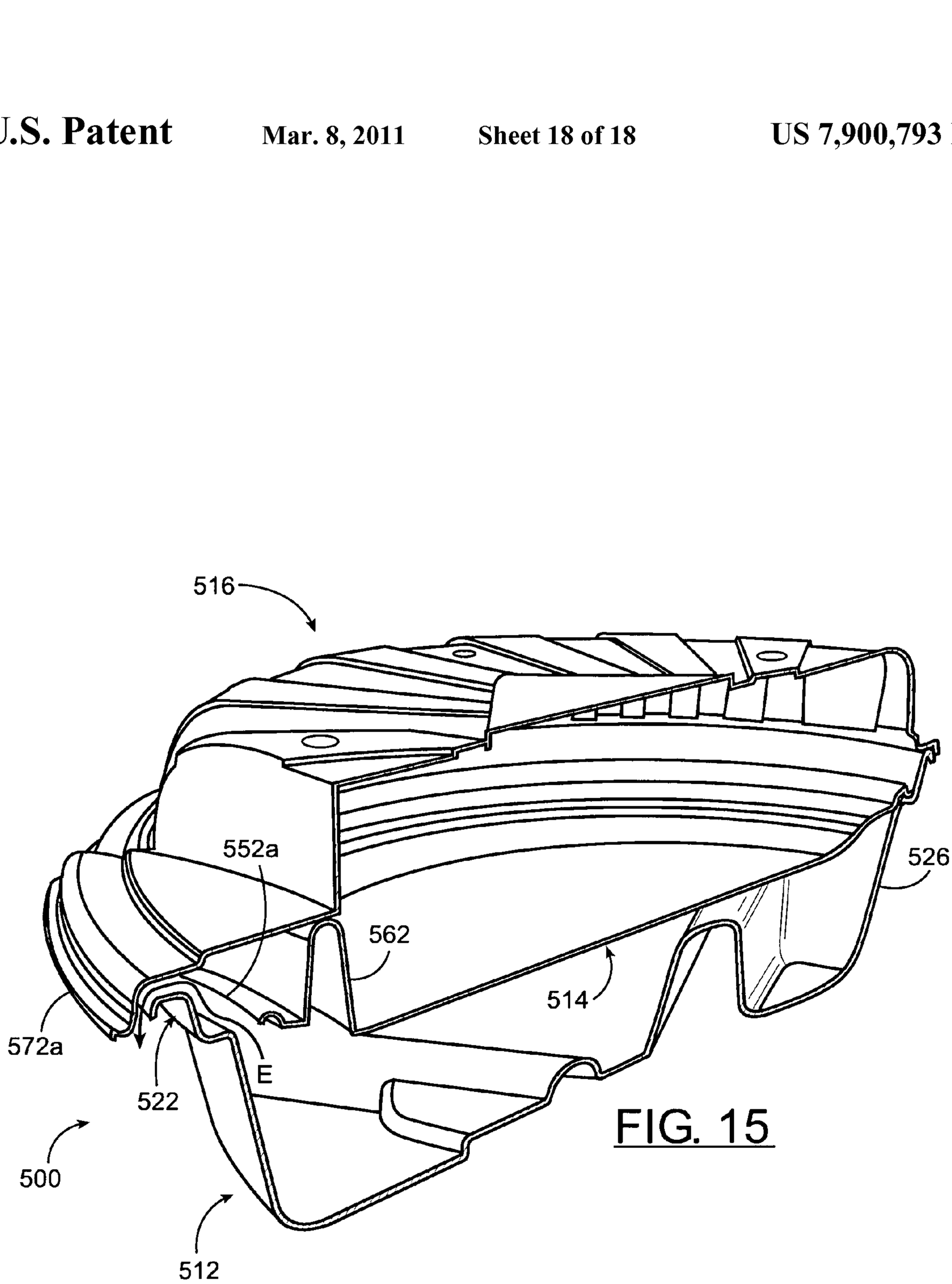

FIG. 15

MULTI-PIECE COMPARTMENTED CONTAINER WITH VENTING

FIELD OF INVENTION

The present invention relates generally to a multi-piece compartmented container. More particularly, the present invention relates to a multi-piece compartmented container to be typically used with food products having different venting needs.

BACKGROUND OF THE INVENTION

The use of inexpensive polymeric, paper or metal packaging containers has become popular, especially for preparing, serving and storing various food products. Polymeric, paper and metal containers generally have been used for preparing, serving and storing the food product(s) disposed therein. In some applications, a plurality of food products is desirably prepared, served and/or stored in one container. It is desirable to keep the different food products separated from each other. One method of keeping the different foods separated from each other is by use of multiple compartments. It is desirable to have compartments that have different venting accommodations. It is also desirable to minimize the footprint of the package, while maximizing the overall capacity and compartment size.

SUMMARY OF THE INVENTION

According to one embodiment, a compartmentalized container includes a base, an insert and a lid. The base includes a bottom and a sidewall. The sidewall encompasses and extends generally upwardly from the bottom. The insert is coupled with the base. The coupled insert and base form a venting area. The lid is coupled with at least one of the insert and the base. The lid forms at least one vent that is in communication with the venting area formed with the insert and the base.

According to another embodiment, a compartmentalized container includes a base, an insert and a lid. The base includes a bottom, a sidewall and a divider. The sidewall encompasses and extends generally upwardly from the bottom. The divider splits the bottom of the base into at least a first base section and a second base section. The divider includes a top surface. The insert is coupled with the base. The assembled insert and base form a venting area. The insert rests on at least a portion of the top surface of the divider. The lid is coupled with at least one of the insert and the base. The lid forms at least one vent that is in communication with the venting area formed with the insert and the base.

According to one method, a compartmentalized container is formed by providing a base including a bottom and a sidewall. The sidewall encompasses and extends generally upwardly from the bottom. The insert is coupled with the base. The assembled insert and base form a venting area. The lid is interlocked with at least one of the insert and the base to form the compartmentalized container. The lid forms at least one vent that is in communication with the venting area formed between the insert and the base.

According to another method, a compartmentalized container is formed by providing a base including a bottom, a sidewall and a divider. The sidewall encompasses and extends generally upwardly from the bottom. The divider splits the bottom of the base into at least a first base section and a second base section. The divider includes a top surface. An insert is coupled with the base. The assembled insert and base form a venting area. The insert rests on at least a portion of the top surface of the divider. The lid is interlocked with at least one of the insert and the base so as to form the compartmentalized container. The lid forms at least one vent that is in communication with the venting area formed between the insert and the base.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1***a* is a perspective view of a base according to one embodiment to be used in forming a compartmentalized container.

FIG. **1***b* is a top view of the base of FIG. **1***a*.

FIG. **1***c* is a bottom view of the base of FIG. **1***a*.

FIG. **2***a* is a perspective view of an insert according to one embodiment to be used in forming a compartmentalized container.

FIG. **2***b* is a top view of the insert of FIG. **2***a*.

FIG. **2***c* is a side view of the insert of FIG. **2***a*.

FIG. **3***a* is a top view of the base of FIGS. **1***a*, **1***b* and the insert of FIGS. **2***a*-**2***c* in an assembled position.

FIG. **3***b* is an enlarged cross-sectional view taken generally along line **3***b*-**3***b* of FIG. **3***a*.

FIG. **4***a* is a top view of a lid according to one embodiment to be used in forming a compartmentalized container.

FIG. **4***b* is a side view of the lid of FIG. **4***a*.

FIG. **5***a* is an exploded view of the base of FIGS. **1***a*-**1***c*, the insert of FIGS. **2***a*-**2***c* and the lid of FIGS. **4***a*, **4***b*.

FIG. **5***b* is a perspective view of the base of FIGS. **1***a*-**1***c*, the insert of FIGS. **2***a*-**2***c* and the lid of FIGS. **4***a*, **4***b* in an assembled position.

FIG. **5***c* is a side view of the base of FIGS. **1***a*-**1***c*, the insert of FIGS. **2***a*-**2***c* and the lid of FIGS. **4***a*, **4***b* in an assembled position.

FIG. **6***a* is an enlarged cross-sectional view taken generally along line **6***a*-**6***a* of FIG. **5***c*.

FIG. **6***b* is an enlarged cross-sectional view taken generally along line **6***b*-**6***b* of FIG. **5***c*.

FIG. **7***a* is a side view of the insert of FIGS. **2***a*-**2***c* and the lid of FIGS. **4***a*, **4***b* in an assembled position.

FIG. **7***b* is an enlarged cross-sectional view taken generally along line **7***b*-**7***b* of FIG. **7***a*.

FIG. **8** is a stacked view of two identical compartmentalized containers.

FIG. **9** depicts a top view of a lid with perforated areas adapted to form vents according to one embodiment.

FIG. **10** is an exploded view of a base, an insert and the lid of FIGS. **4***a*, **4***b* according to one embodiment.

FIG. **11** is an exploded view of a base, an insert and a lid having a generally rectangular configuration according to one embodiment.

FIG. **12** is an exploded view of a base, an insert and a lid according to another embodiment.

FIG. **13** is an enlarged cross-sectional view of the assembled container of FIG. **12** taken generally across the area where the venting occurs.

FIG. **14** is an exploded view of a base, an insert and a lid-according to a further embodiment.

FIG. **15** is an enlarged cross-sectional view of the assembled container of FIG. **14** taken generally across the area where the venting occurs.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed but, on the contrary, the intention is to

cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Referring to FIGS. **5***a*-**5***c*, a compartmentalized container **10** including a base **12**, insert **14** and a lid **16** is shown. The compartmentalized container **10** is shown as being generally circular or oval in nature. The height and shape of the compartmentalized container may vary from that shown without departing from the scope of the invention. It is contemplated that the compartmentalized container may be other shapes such as rectangular, square, hexagonal, octagonal or other polygonal and non-polygonal shapes.

The compartmentalized containers are typically used with food items. Such food containers may be used for serving, storing, preparing and/or re-heating the food. It is contemplated that the compartmentalized containers may be used in applications other than with food.

Referring to FIGS. **1***a*-**1***c*, the base **12** includes a continuous body portion **20** and a continuous rim **22** encompassing and projecting laterally outwardly from the body portion **20**. The body portion **20** includes a bottom **24** and a continuous sidewall **26** encompassing and projecting upwardly and outwardly from the bottom **24**. It is contemplated that the sidewall may project only upwardly from the bottom or even project upwardly and inwardly from the bottom. It is also contemplated that the rim may not be continuous, although it is desirably continuous.

The body portion **20** further includes a divider **30** that splits the bottom **24** of the base **12** into a first base section **24***a* and a second base section **24***b*. The divider **30** as shown in FIGS. **1***a*, **1***b* extends generally upwardly from the bottom **24** of the base **12**. The divider **30** includes two side walls **30***a*, **30***b* and a generally rounded top surface **30***c*. The side walls **30***a*, **30***b* and the generally rounded top surface **30***c* assist in provided strength to the compartmentalized container. To assist in providing additional structural strength, the divider **30** may be of a general "S" configuration as best depicted in FIG. **1***b*. More specifically, the general "S" configuration of the divider **30** assists in providing flexural strength that assists in minimizing the twisting or bending of the compartmentalized container. It is contemplated that the divider may be of other configurations such as a zig-zag, straight, arched or a generally curvilinear shape. It is also contemplated that the divider may split the bottom of the base into more than two sections.

The divider **30** may be formed by having the bottom **24** thermoformed upwardly such that a gap is formed (see gap **32** of FIG. **1***a*). It is contemplated that the divider may be formed of additional material such that bottom remains generally flat and the divider extends generally across and from the bottom of the base.

The first base section **24***a* and the second base section **24***b* are shown as being generally equal in area in FIGS. **1***a*-**1***c*. It is contemplated that the divider may be located in such a manner that the first and second base sections are not equal in size.

By having separate compartments, items (e.g., food items) may be placed in different compartments to prevent or inhibit commingling of items. For example, undesirable mixing of food items can corrupt the flavor and the consistency of the food items.

Referring still to FIGS. **1***a*-**1***c*, the first base section **24***a* and the second base section **24***b* may have surfaces configured to hold or contain, for example, certain food items. For example, the first base section **24***a* has a generally smooth surface, while the second base section **24***b* has a patterned surface to assist in trapping liquids therein.

One non-limiting example of a patterned surface is a "waffle" pattern that is depicted in conjunction with the second base section **24***b* in FIGS. **1***a*-**1***c*. The waffle pattern **36** includes a plurality of wells **40** that are formed in a grid configuration. It is contemplated that the plurality of wells may be formed in other shapes and sizes. The wells **40** assist in trapping or containing liquids (e.g., juices or grease) that have run off of the food product. More specifically, the liquids will desirably drain into and be contained within the wells in such a manner that food product will have minimized or no contact with the liquids. It is contemplated that other patterns or non-patterns may be formed in the base section to accomplish the same function of trapping or containing liquids.

To assist in stacking a plurality of compartmentalized containers, at least one of the first base section and the second base section may have a recessed surface. For example, referring to FIG. **1***c*, the first base section **24***a* and the second base section **24***b* form respective recessed surfaces **42***a*, **42***b*. The recessed surfaces **42***a*, **42***b* corresponds with a stacking projection **74***a* of the lid **16** (see FIGS. **4***b*, **8**) to assist in stacking a plurality of compartmentalized containers. The plurality of containers is shown stacked in FIG. **8** with compartmentalized containers **10***a*, **10***b*. The compartmentalized containers **10***a*, **10***b* are identical to the compartmentalized containers **10** described herein. By having a stacking projection and a corresponding recessed portion, multiple compartmentalized containers may be stacked securely with each other.

Referring back to FIGS. **1***a*, **1***b*, the continuous sidewall **26** before transiting to the continuous rim **22** forms a ledge or step **46** at a top edge thereof. The ledge **46**, which will be discussed in more detail below, includes a generally flat top surface and assists in receiving and coupling with the insert **14**.

Referring to FIGS. **2***a*-**2***c*, views of an insert (the insert **14**) according to one embodiment to be used in forming a compartmentalized container (compartmentalized container **10**) are shown. The insert **14** includes a continuous body portion **50** and a continuous rim **52** encompassing and projecting laterally outwardly from the body portion **50**. The body portion **50** includes a bottom **54** and a continuous sidewall **56** encompassing and projecting upwardly and outwardly from the bottom **54**.

The insert **14** is adapted to be assembled into or onto the base **12**. Specifically, as shown in FIGS. **3***a*, **3***b*, the continuous rim **52** is adapted to abut or rest on the ledge **46** of the base **12**. When the continuous rim **52** of the insert **14** abuts on the ledge **46**, a venting area **60** is formed between the insert **14** and the base **12**. The venting area **60** is formed when a portion **52***a* of the continuous rim **52** is cut back slightly. The portion **52***a* of the continuous rim **52** does not abut or rest on the ledge **46**. As shown in FIG. **3***a*, the venting area **60** is of a general shape of a finger. It is contemplated that the venting area may be of different sizes and shapes to achieve proper venting of the products to be placed in the container.

Referring back to FIGS. **2***a*-**2***c*, the insert **14** also includes a protrusion **62** extending upwardly therefrom. As will be discussed in more detail below in conjunction with FIGS. **5***b*, **6***b*, the protrusion **62** assists in preventing or inhibiting the vented air flow from the area between the base **12** and the insert **14** from mixing with the area between the insert **14** and the lid **16**.

To assist in further separating or defining the compartments formed by the first base section **24***a* and the second base section **24***b*, the insert **14** (and more specifically the bottom

54) also rests on the top surface **30***c* of the divider **30** in one embodiment. To assist in forming an improved seal therebetween, the top surface **30***c* of the divider **30** and a portion of the bottom surface **54***a* of the insert **14** have a similar contour to assist in forming a seal therebetween. A sufficient seal desirably assists the formed compartments in maintaining separate temperature and humidity conditions over a period of time typically used to store food therein. To assist in properly placing the insert **14** (FIG. **2***c*) with respect to the base **12**, the bottom surface **54***a* of the insert **14** forms two slightly recessed portions (one of the recessed portions **54***b* is shown in FIG. **2***c*) that correspond with the top surface **30***c* of the divider **30**. A top view of the recessed portions is shown in FIGS. **2***a*, **2***b*.

By forming a seal between the top surface **30***c* of the divider **30** and the bottom surface **54***a* of the insert **14**, the first and second base sections **24***a*, **24***b* form generally sealed compartments that assist in inhibiting or preventing air/moisture from moving between the compartments. By having separately sealed compartments, the ability to assist in maintaining different temperatures of food products and humidity levels contained therein is improved. The assembled base **12** and the insert **14** result in a sealed lower compartment with no venting and a vented lower compartment (compartment partially defined by the protrusion **62** and portion **52***a* of the rim **50**) are formed. The vented lower compartment vents through the venting area **60**. Each of the compartments is designed to have the potential of having different foods at potentially different temperatures stored in a different moisture-content environment. By maintaining food products under different conditions (e.g., temperature and humidity levels), the food products may be optimally stored to obtain freshness. For example, if a product is desired to be hot (e.g., eggs and meat), it may be located in the sealed lower compartment and if a product is desired to be warm and crispy (e.g., hash browns), it may be located in the vented lower compartment.

Referring to FIGS. **4***a*, **4***b*, views of a lid (the lid **16**) according to one embodiment to be used in forming a compartmentalized container (compartmentalized container **10**) are shown. The lid **16** includes a continuous body portion **70** and a continuous rim **72** encompassing and projecting laterally outwardly from the body portion **70**. The body portion **70** includes a top **74** and a continuous sidewall **76** encompassing and projecting downwardly and outwardly from the top **74**. The top **74** includes the stacking projection **74***a* that assists in stacking with the recessed portions **42***a*, **42***b* (FIG. **1***c*) of another compartmentalized container. To provide additional strength to the lid **16**, the body portion **70** forms a plurality of spaced ribs **78** therein and the rim **72** also forms a plurality of spaced ribs **80** therein. The plurality of ribs, if used, may be of different shapes and sizes than that depicted in FIGS. **4***a*, **4***b*.

The body portion **70** of the lid **16** also includes multiple areas where venting occurs. Specifically, the top **74** includes a plurality of vents **82** (e.g., vents **82***a*, **82***b*). The plurality of vents **82** is spaced in different locations therearound to assist in venting of food products placed on the insert **14**. The vents **82** are generally circular shaped in FIG. **4***a*, but it is contemplated that other numbers, shapes and sizes may be used including polygonal and non-polygonal shapes. The lid **16** also forms a plurality of vents **84** (e.g., vents **84***a*, **84***b*) therein to assist in venting of the food products from the vented lower compartment and through the vented area **60**. The vents **84** are generally circular shaped in FIG. **4***a*, but it is contemplated that other numbers, shapes and sizes may be used including polygonal and non-polygonal shapes. For example, the lid may form exactly one vent to assist in venting of the food products from the vented lower compartment.

In addition to the venting shown in, for example, FIGS. **4***a*, **5***b*, the venting may be accomplished by other methods. Referring to FIG. **9**, a lid **116** includes a continuous body portion **170** and a continuous rim **172** encompassing and projecting laterally outwardly from the body portion **170**. The body portion **170** includes a top **174** and a continuous sidewall **176** encompassing and projecting downwardly and outwardly from the top **174**. The top **174** includes a stacking projection **174***a* that assists in stacking with the recessed portions **42***a*, **42***b* (FIG. **1***c*) of another compartmentalized container. To provide additional strength to the lid **116**, the body portion **170** forms a plurality of spaced ribs **178** therein and the rim **172** also forms a plurality of spaced ribs **180** therein.

The lid **116** of FIG. **9** further includes a plurality of vents **182***a-d* and **184***a-e* that may be formed by perforating or otherwise creating an area of weakness therein. In such an embodiment, a user may "punch out" or otherwise remove the material in the lid **116** to form the vents **182***a-d* and/or **184***a-e*. This may be especially desirable for vents **182***a-d* in which the user may not desire to vent selected items (e.g., food items) in the upper compartment, while desiring venting on other items.

The lid **16** or the lid **116** may be adapted to be assembled with at least one of the insert **14** and the base **12**. Referring to FIGS. **5***b*, **5***c*, the lid **16** is assembled with the insert **14** and the base **12**. An exploded view of the base **12**, insert **14** and the lid **16** is shown in FIG. **5***a*. In this embodiment, as shown best in FIGS. **6***a*, **6***b*, the continuous rim **72** of the lid **16** is adapted to mate with the continuous rim **22** of the base **12**. The continuous rim **72** of the lid **16** is mated or interlocked with the continuous rim **22** of the base **12** using a snap fit. The continuous rim **72** may include at least one undercut **72***a* to assist in interlocking the lid and the base. It is contemplated that many other attachment methods may be used such as a rib and groove configuration, a matching dovetail closure system, matching internal undercut closure configuration, a slot- and tab-closure system or a folding snap over closure system. The interlocking features are typically formed only on the rims of the containers, but the interlocking features may extend into or through other portions of the containers. For example, the lid and the base may be hingedly connected.

In this embodiment, the continuous rim **72** of the lid **16** is not mated or interlocked with the continuous rim **52** of the insert **14** as shown in FIGS. **6***a*, **6***b*. The continuous rim **52** of the insert **14** abuts the ledge **46** of the base **12** and remains in place due to the interference between the protrusion **62** of the insert **14** and the lid **16**.

When the base **12**, inert **14** and the lid **16** are assembled, the plurality of vents **84** is desirably aligned with the venting area **60**, which is formed between the assembled insert **14** and the base **12**. It is desirable for the plurality of vents **84** and the venting area **60** to be generally aligned with each other such that any venting from a vented lower compartment **94** is directly vented to the atmosphere when the lid is assembled with the base and the insert. This "chimney" vent allows for direct venting to the atmosphere of the vented lower compartment **94** without venting to an upper compartment **96** formed between the insert **14** and the lid **12**. As shown in FIG. **6***b*, the protrusion **62** of the insert **14** assists in directing the gases from the venting area **60** directly through the plurality of vents **84**. Thus, by having the protrusion **62**, the likelihood of the gases from the lower vented compartment entering the upper vented compartment formed between the insert **14** and the lid **16** is significantly reduced. The upper vented compartment may include food items different from or the same as the

lower compartments. One example of a food item that may be included in the upper compartment would be pancakes or other side items.

Thus, the compartmentalized container of FIGS. **5***b*, **5***c* provides a first lower compartment **92** to be sealed with no venting, the second lower compartment **94** with dedicated venting, and the upper vented compartment **96** with separate dedicated venting. As discussed above, the upper compartment may not be vented if, for example, the vents **182***a-d* of lid **116** of FIG. **9** are not removed. Each of the compartments is designed to have different specific foods therein and also to assist in maintaining the freshness of each of the foods. In this embodiment, each of the compartments **92**, **94**, **96** is sealed from each of the other compartments.

The continuous rim **72** of the lid **16** has a two level-closure design that is adapted to be individually interlocked with the base **12** in one embodiment (FIGS. **5***b*, **5***c*, **6***a*, **6***b*) or with the insert **14** in another embodiment (FIGS. **7***a*, **7***b*). By having a two level-closure design, this allows flexibility in forming the compartmented container. For example, the lid, base and insert may be assembled to form a three-piece compartmented container. In another method, the lid and insert may be assembled to form a two-piece container **100**. This is shown in FIGS. **7***a*, **7***b* with the lid **16** and the insert **14** being interlocked with each other. The lid **16** and the insert **14** are interlocked using a second undercut **72***b*. The two-piece container may be used for packaging of other food products. Thus, by having a two level-closure system, this eliminates the need for another specialty package for use.

As discussed above in conjunction with FIGS. **3***a*, **3***b*, it is contemplated that other closure designs may be used in which the lid may individually attach to both the insert and base. It is also contemplated that a system may be designed in which the lid is attached to the insert and base at the same time.

It is contemplated that other configurations of a compartmentalized container may be formed. For example, referring to FIG. **10**, a compartmentalized container **200** includes the lid **16**, an insert **214** and a base **212**. The insert **214** includes a continuous rim **252** and a protrusion **262**. The protrusion **262** is used in a similar manner as described above with the protrusion **62**. The base **212** includes a continuous body portion **220** and a continuous rim **222**. The continuous body portion **220** includes a sidewall **226** and a bottom **224**. The continuous sidewall **226** before transiting to the continuous rim **222** forms a ledge or step **246**. The ledge **246** has an enlarged area **246***a* that assists the user in locating the insert **214** with the protrusion **262** in a desirable location.

As discussed above, the compartmentalized container may be other shapes such as rectangular, square, hexagonal, octagonal or other polygonal and non-polygonal shapes. A non-limiting example of a compartmentalized container is shown in FIG. **11**. FIG. **11** is an exploded view of a compartmentalized container **310** that includes a base **312**, an insert **314** and a lid **316**. The base **312** includes a continuous body portion **320** and a continuous rim **322**. The continuous body portion **320** includes a sidewall **326** and a bottom **324**. The continuous sidewall **326** before transiting to the continuous rim **322** forms a ledge or step **346**. The insert **314** includes a continuous rim **352** and a protrusion **362**. The lid **316** includes a continuous rim **372**. The lid **316** forms a plurality of vents **382** and also forms a plurality of vents similar to vents **84***a, b* of FIG. **4***a*.

It is contemplated that other locations for the venting of a lower compartment may be used. For example, the venting may occur through the sidewall of the base, in which the venting would typically be located at or near the continuous rim. A non-limiting example of such venting container is shown in FIGS. **12** and **13**. FIG. **12** is an exploded view of a compartmentalized container **410** that includes a base **412**, an insert **414** and a lid **416**. The base **412** includes a continuous body portion **420** and a continuous rim **422**. The continuous body portion **420** includes a sidewall **426** and a bottom **424**. The continuous sidewall **426** before transiting to the continuous rim **422** forms a ledge or step **446**. The ledge **446** forms a plurality of vents **448***a-d*. The insert **414** includes a continuous rim **452**. The lid **416** includes a continuous rim **472** and forms a plurality of vents **482**. As best shown in FIG. **13**, venting from the contents of the base **412** travels along a path of arrow D into a space beneath a bottom surface **452***a* of the continuous rim **452** and through the plurality of vents **448** of which vents **448***a*, **448***b* are depicted in FIG. **13**. The continuous rim **452** is designed to provide adequate space for the venting to escape through the plurality of vents **448**.

It is also contemplated that the venting may also occur over the edge of the insert. In such an embodiment, the base and the lid would not be typically interlocked at such a location so as to provide an area for the moisture to escape the sealed lower vented compartment. More specifically, the moisture escapes over the continuous rim of the base and along a lower side of the insert. A non-limiting example of such venting is shown in FIGS. **14** and **15**.

FIG. **14** is an exploded view of a compartmentalized container **510** that includes a base **512**, an insert **514** and a lid **516**. The base **512** includes a continuous body portion **520** and a continuous rim **522**. The continuous body portion **520** includes a sidewall **526** and a bottom **524**. The continuous sidewall **526** before transiting to the continuous rim **522** forms a ledge or step **546**. The insert **514** includes a continuous rim **552** and a protrusion **562**. The continuous rim **552** rests or abuts on the ledge **546**. The lid **516** includes a continuous rim **572** and forms a plurality of vents **582**. The continuous rim **572** forms an overhanging area **572***a* that assists in venting from the base by forming a venting space. As shown best in FIG. **15**, venting from the contents of the base **512** travels along a path of arrow E into a space formed between the continuous rim **522** and the overhanging area **572***a* of the continuous rim **572**. The continuous rim **552** of the insert **514** is cutaway at portion **552***a*, which allows a space to be formed between portion **552***a* and the continuous rim **522**.

The compartmentalized containers are typically formed from polymeric materials, but may be formed from other materials such as paper or metal. The polymeric compartmentalized containers may be formed from polyolefins. The polymeric food containers are typically formed from polystyrene (e.g., orientated polystyrene (OPS)), polyethylene terephthalate (PET) (e.g., APET), polyvinyl chloride (PVC), polypropylene, and combinations thereof. It is contemplated that one of ordinary skill in the art will recognize that other polymers or combination of polymers may be used to form the containers.

The compartmentalized containers may be made from a mineral-filled polymeric material such as, for example, talc or calcium carbonate-filled polyolefin. One specific non-limiting example is a talc-filled polypropylene.

The compartmentalized containers may be formed from polymeric materials that are foamable. For example, the base and the insert may include a polystyrene foam, while the lid is formed from OPS. To assist the consumer in viewing the products (e.g., food products) within the container, the lid is typically formed from a material that is translucent or transparent. To assist in providing improved temperature retention, the base and/or insert may include an insulating material such as a foamable material (e.g., polystyrene foam).

An example of paper that may be used in forming the compartmentalized containers is paperboard or molded fiber. Paperboard and molded fiber typically have a sufficient coefficient of friction to maintain the compartmentalized container in a lockable position.

The compartmentalized containers of the present invention are typically disposable, but it is contemplated that they may be reused at a future time.

The containers may be formed using conventional thermoforming (e.g., by pressure, vacuum or the combination thereof), injection-molding processes, or rotational molding. According to one method of thermoforming, pellets of a polymeric resin and additives, if any, are added into an extruder. The pellets of the polymeric resin and additives, if any, are melted to form a blend. The blend is extruded through a die to form an extruded sheet. The extruded sheet is thermoformed to a desired shape of a container.

The thickness of the compartmentalized containers generally ranges from about 0.002 to about 0.15 inch, but is typically from about 0.005 to about 0.04 inch. The compartmentalized containers may be opaque or a variety of colors or color combinations.

While particular embodiments and applications of the present invention have been illustrated and described, it is to be understood that the invention is not limited to the precise construction and compositions disclosed herein and that various modifications, changes, and variations may be apparent from the foregoing descriptions without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A compartmentalized container comprising:

a base including a bottom and a sidewall, the sidewall encompassing and extending generally upwardly from the bottom;

an insert being coupled with the base, the coupled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base; and

a lid being coupled with at least one of the insert and the base, the lid forming at least one lid vent that is in communication with the first vent,

wherein the base, the insert and the lid assist in forming separated first and second compartments in the compartmentalized container, the first compartment being adapted to receive at least one item on the bottom of the base, the second compartment being adapted to receive at least one item on the second surface of the insert.

2. The compartmentalized container of claim **1** wherein the base further includes a divider, the divider splitting the bottom of the base into at least a first base section and a second base section.

3. The compartmentalized container of claim **2** wherein the first base section has a generally smooth surface and the second base section has a plurality of wells to assist in trapping liquids therein.

4. The compartmentalized container of claim **1** wherein the sidewall of the base further includes a ledge formed thereon, the insert abutting and resting on the ledge when coupled.

5. The compartmentalized container of claim **1** wherein the lid vent and the first vent are generally aligned with each other.

6. A compartmentalized container comprising:

a base including a bottom and a sidewall, the sidewall encompassing and extending generally upwardly from the bottom;

an insert being coupled with the base, the coupled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base; and

a lid being coupled with at least one of the insert and the base, the lid forming at least one lid vent that is in communication with the first vent,

wherein the insert includes a protrusion, the protrusion extending from the second surface of the insert and assisting in preventing or inhibiting vented air flow from the first vent from reaching an area between the second surface of the insert and lid.

7. The compartmentalized container of claim **1** wherein the sidewall of the base extends outwardly from the bottom.

8. A compartmentalized container comprising:

a base including a bottom and a sidewall, the sidewall encompassing and extending generally upwardly from the bottom;

an insert being coupled with the base, the coupled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base; and

a lid being coupled with at least one of the insert and the base, the lid forming at least one lid vent that is in communication with the first vent,

wherein the lid is coupled with the base in an interlocking manner.

9. The compartmentalized container of claim **8** wherein the lid interlocks with the base using at least one undercut.

10. The compartmentalized container of claim **1** wherein the lid forms a plurality of lid vents.

11. A compartmentalized container comprising:

a base including a bottom and a sidewall, the sidewall encompassing and extending generally upwardly from the bottom;

an insert being coupled with the base, the coupled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base; and

a lid being coupled with at least one of the insert and the base, the lid forming at least one lid vent that is in communication with the first vent,

wherein the lid has a closure system that is adapted to independently interlock with the insert and the base.

12. The compartmentalized container of claim **1** wherein at least one of the base, the insert or the lid includes a polymer.

13. The compartmentalized container of claim **12** wherein the base, the insert and the lid includes a polymer.

14. The compartmentalized container of claim **1** wherein the base is a foamable material.

15. The compartmentalized container of claim **1** wherein the base, lid and the insert form a plurality of compartments, each of the plurality of compartments being sealed from the other remaining compartments.

16. A compartmentalized container comprising:

a base including a bottom, a sidewall and a divider, the sidewall encompassing and extending generally upwardly from the bottom, the divider splitting the bottom of the base into at least a first base section and a second base section, the divider including a top surface;

an insert being coupled with the base, the assembled insert and base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the

insert and the base, the insert resting on at least a portion of the top surface of the divider; and

a lid being coupled with at least one of the insert and the base, the lid forming at least one lid vent that is in communication with the first vent.

17. The compartmentalized container of claim **16** wherein the insert has a bottom surface, the top surface of the divider and the bottom surface of the insert having a similar contour to assist in forming a seal therebetween.

18. The compartmentalized container of claim **16** wherein the divider splits the bottom into exactly a first base section and a second base section.

19. The compartmentalized container of claim **16** wherein the container has exactly three compartments.

20. The compartmentalized container of claim **16** wherein the base, lid and the insert form a plurality of compartments, each of the plurality of compartments being sealed from the other remaining compartments.

21. The compartmentalized container of claim **16** wherein the divider is of a general "S" configuration.

22. A method of forming a compartmentalized container, the method comprising:

providing a base including a bottom and a sidewall, the sidewall encompassing and extending generally upwardly from the bottom;

providing a lid;

coupling an insert with the base, the assembled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base; and

interlocking the lid with the base to form the compartmentalized container, the lid forming at least one lid vent that is in communication with the first vent.

23. A method of forming a compartmentalized container, the method comprising:

providing a base including a bottom, a sidewall and a divider, the sidewall encompassing and extending generally upwardly from the bottom, the divider splitting the bottom of the base into at least a first base section and a second base section, the divider including a top surface;

coupling an insert with the base, the assembled insert and the base forming a first vent, the insert including a first surface and a second surface, the first vent being formed from a space being defined by the first surface of the insert and the base, the insert resting on at least a portion of the top surface of the divider; and

interlocking a lid with at least one of the insert and the base to form the compartmentalized container, the lid forming at least one lid vent that is in communication with the first vent.

24. A compartmentalized container comprising:

a base including a bottom, a sidewall and a divider, the sidewall encompassing and extending generally upwardly from the bottom, the divider splitting the bottom of the base into at least a first base section and a second base section, the divider including a top surface;

an insert being coupled with the base, the assembled insert and the base forming a venting area, the insert resting on at least a portion of the top surface of the divider; and

a lid being coupled with at least one of the insert and the base, the lid including a continuous rim, the continuous rim of the lid having an overhanging portion such that a venting space occurs between the lid and the base, the venting space being in communication with the venting area.

25. A compartmentalized container comprising:

a base including a bottom, a sidewall, a continuous rim, and a divider, the sidewall encompassing and extending generally upwardly from the bottom, the continuous rim encompassing and extending generally outwardly from the sidewall, the continuous rim including at least a first ledge and a second ledge, the first ledge of the continuous rim forming at least one ledge vent, the divider splitting the bottom of the base into at least a first base section and a second base section, the divider including a top surface;

an insert being coupled with the second ledge of the continuous rim, the assembled insert and base forming a venting area that is in communication with the at least one ledge vent, the insert resting on at least a portion of the top surface of the divider; and

a lid being coupled with at least one of the insert and the base.

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